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(54)【発明の名称】　カラー画像形成装置

(57)【要約】
【目的】　ホストコンピュータで作成された画像データであっても，画像スキャナで読み取った画像データであっても，偽造文書の判定を実行可能にして，紙幣等の偽造行為を阻止する。
【構成】　ホストコンピュータ120およびカラースキャナ106からの画像データに所定の画像処理を施して画像形成を実行するカラー画像形成装置において，前記ホストコンピュータ120からの画像データとカラースキャナ106からの画像データを切り替え，該画像データを選択出力するセレクタ104と，前記セレクタ104により選択出力された画像データが偽造文書であるか否かを判定する偽造防止ユニット103とを具備した。

1
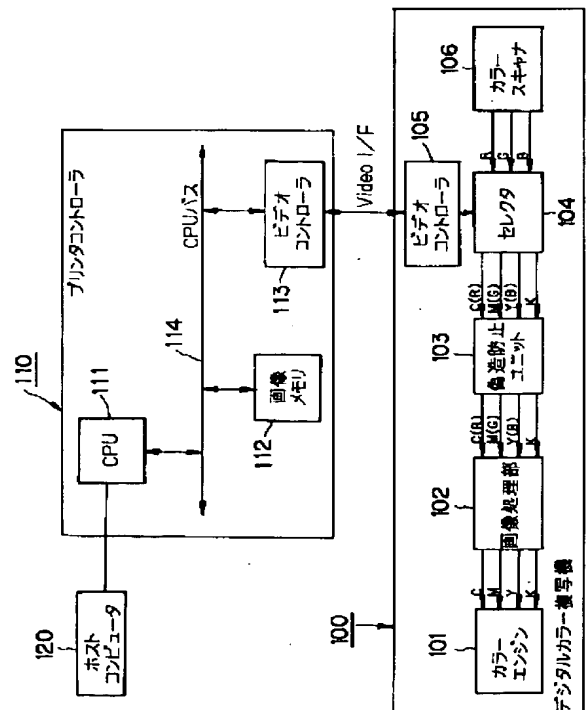
【特許請求の範囲】

【請求項1】　ホストコンピュータおよび画像スキャナからの画像データに所定の画像処理を施して画像形成を実行するカラー画像形成装置において，前記ホストコンピュータからの画像データと画像スキャナからの画像データを切り替え，該画像データを選択出力するデータ切替手段と，前記データ切替手段により選択出力された画像データが偽造文書であるか否かを判定する偽造文書判定手段とを具備したことを特徴とするカラー画像形成装置。

【請求項2】　ホストコンピュータおよび画像スキャナからの画像データに所定の画像処理を施して画像形成を実行するカラー画像形成装置において，前記ホストコンピュータからの画像データと画像スキャナからの画像データを切り替え，該画像データを選択出力するデータ切替手段と，前記データ切替手段により選択出力された画像データが偽造文書であるか否かを判定する偽造文書判定手段と，前記ホストコンピュータからの画像データを前記偽造文書判定手段で処理した後，画像処理を行わずに作像部に出力するラッチ手段とを具備したことを特徴とするカラー画像形成装置。

【請求項3】　ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段を具備することを特徴とするカラー画像形成装置。

【請求項4】　ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段と，前記偽造文書判定手段による判定結果が偽造である場合にその情報を登録する偽造情報登録手段とを具備することを特徴とするカラー画像形成装置。

【請求項5】　ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段と，前記偽造文書判定手段による判定結果が偽造である場合にその情報を登録する偽造情報登録手段と，偽造文書と判定された画像データに特定の画像パターンを付加する画像付加手段とを具備することを特徴とするカラー画像形成装置。

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【請求項6】　ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に，予め紙幣等の参照画像データを格納する参照画像データ格納手段と，前記ホストコンピュータからの画像データが偽造文書であるか否かを前記参照画像データにより判定する偽造文書判定手段を具備することを特徴とするカラー画像形成装置。

【請求項7】　前記参照画像データ格納手段に格納するデータは，テキストデータの大きさ，あるいは（および）間隔，あるいは（および）位置関係，あるいは（および）色データであることを特徴とする請求項6記載のカラー画像形成装置。

【請求項8】　前記参照画像データ格納手段に格納するデータは，記録紙の隅から距離，あるいは基準となる点，あるいは（および）線であることを特徴とする請求項6記載のカラー画像形成装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は，紙幣，有価証券，チケット等の偽造複写を防止する機能を設け，ホストコンピュータや画像スキャナから送られる画像データの偽造チェック処理を実行するデジタルカラー複写機やカラープリンタ等のカラー画像形成装置に関するものである。

【0002】

【従来の技術】従来のプリンタシステムの構成を図12に示す。図において，本システムは，ホストコンピュータ120と，CPU1201，画像メモリ1202，プリンタエンジン1203とから構成されている。

【0003】以上の構成において，使用者はホストコンピュータ120で印刷したい1ページ分の画像を作成する。該作成された画像データは，使用者の印刷命令によりCPU1201に送られ，CPU1201は画像メモリ1202にビットマップイメージで画像データを展開していく。1ページ分の画像データを展開し終えるとCPU1201はプリンタエンジン1203に印刷命令を出力し，画像メモリ1202に格納されたVideoI／Fを介してプリンタエンジン1203に送出して印刷処理を実行する。

【0004】次に，偽造防止機能があるデジタルカラー複写機の構成を図13に示す。図において，1301はカラースキャナ，1302は偽造防止ユニット，1303は画像処理部，1304はカラーエンジンである。

【0005】以上の構成において，その動作を説明すると，デジタルカラー複写機内部にあるカラースキャナ1301により，原稿を読み取り，R，G，Bの画像データに変換する。該読み取られた画像データは，偽造防止ユニット1302に送られ，該偽造防止ユニット130

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2では予め記憶された紙幣等の画像データと比較され，一致しなければカラースキャナ1301から送られた画像データをそのまま画像処理部1303に送る。一方，上記において，比較した画像データと記憶データとが一致した場合には，画像処理部1303への画像データの送出を停止する。画像処理部1303では，ＭＴＦ補正，γ補正，色補正，ディザ処理等の画像処理を実行し，Ｃ，Ｍ，Ｙ，Ｋで表される画像データをカラーエンジン1304に送出する。カラーエンジン1304では，電子写真プロセスに基づいて印刷を実行して，記録紙に画像を形成する。

【0006】次に，デジタルカラー複写機とカラープリンタコントローラを接続して，プリンタ機能だけではなく，スキャナ機能もサポートする技術として，図14に示すシステム構成が知られている。図において，1401は画像描画装置であり，ＣＰＵ1201からの各データを一時的に格納するＦＩＦＯ1402，データ切替部1403，アドレス制御部1404，背景保持部1405とから構成されている。これらのシステムは，具体的には，図15に示すように構成されている。

【0007】図15において，1500はオペレーションコントローラ，1501は主走査方向の描画開始アドレス（開始座標）を格納しておくＸＳレジスタ，1502は主走査方向の描画終了アドレス（終了座標）を格納しておくＸＥレジスタ，1503は副走査方向の描画開始アドレスを格納しておくＹＳレジスタ，1504は副走査方向の描画終了アドレスを格納しておくＹＥレジスタ，1505は色彩の濃度値を示すＣＭＹＫデータを格納しておくＣＭＹＫレジスタである。

【0008】また，1506は主走査方向の描画アドレスを発生するＸアドレスカウンタ，1507は副走査方向の描画アドレスを発生するＹアドレスカウンタ，1508はＸアドレスカウンタ1506およびＹアドレスカウンタ1507を制御するアドレスカウンタ，1509は乗数を格納する乗数レジスタ，1510はＹアドレスカウンタ1507のカウント値（副走査方向の描画アドレス）と乗数レジスタ1509の乗数とを乗算する乗算器，1511はＸアドレスカウンタ1506のカウント値（主走査方向の描画アドレス）と乗算器1510の出力とを加算する加算器，1512は主走査方向の描画終了を知らせるＸコンパレータ（主走査方向比較器），1513は副走査方向の描画終了を知らせるＹコンパレータ（副走査方向比較器）である。

【0009】また，画像メモリ1202のリードモデファイライト機能を制御する第1のラッチ回路1514と，第2のラッチ回路1515と，ＯＲゲート1516と，セレクタ1517とから構成されるメモリデータ制御装置と，モード情報を格納するモードレジスタ1518と，この他に図示しないが，カラースキャナ1301に読み込まれた画像データに変換処理を施すデータ変換

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回路と，カラースキャナ1301により読み込まれた画像データにディザ処理を施すディザ処理回路と，モードレジスタ1518内のモード情報により，ＦＩＦＯ1402，カラースキャナ1301，データ変換装置，ディザ処理回路からそれぞれ出力されるデータの何れかを選択するセレクタ1519とを備えている。

【0010】上記構成における動作を説明すると，使用者は，ホストコンピュータ120でポストスクリプトに代表されるページ記述言語により印字したい1ページ分の画像データを作成した後，その画像データをＣＰＵ1201に送出する。この画像データは，円等の曲線も全てベクトルで表現されているため，ＣＰＵ1201は，そのベクトルデータを全て主走査方向の直線ベクトルに変換し直し，ソーティングして画像描画装置1401へ送られる。

【0011】上記において，画像描画装置1401に入力された画像データは，全てＦＩＦＯ1402を介して各部に送られる。このＦＩＦＯ1402に登録されたデータの一部には，ＴＡＧビットが付けられ，該ＴＡＧビットがオペレーションコントローラ1500に送られる。そして，オペレーションコントローラ1500は，ＴＡＧビットに続くデータビットが，座標のデータであるか濃度のデータであるか，あるいは直線描画命令であるかを振り分ける。

【0012】次に，ＴＡＧビットが主走査方向の描画命令であった場合にはそれをＸＳレジスタ1501に，主走査方向の描画終了点であった場合にはそれをＸＥレジスタ1502に，副走査方向の描画開始点であった場合にはそれをＹＳレジスタ1503に，ＣＭＹＫの画像データであればそれをＣＭＹＫレジスタ1505にそれぞれラッチする。

【0013】次に，図14のアドレス制御部について説明する。ＴＡＧビットに直線描画オペレーションフラグが立つと，図15のアドレスコントローラ1508は，Ｘアドレスカウンタ1506にＸＳレジスタ1506の値をＹアドレスカウンタ1507にＹＳレジスタ1503の値をそれぞれロードすると共に，Ｘアドレスカウンタ1506へカウントイネーブル信号ＸＥＮを出力する。該ＸＥＮがアサートされるとＸアドレスカウンタ1506は，主走査方向のアドレスを画素クロックに同期してカウントアップする。乗算器1510は，ＣＰＵ1201により予め乗数レジスタ1509に格納された乗算の値と，Ｙアドレスカウンタ1507の出力の乗数を計算する。ただし，乗数レジスタ1509の値は，印字する記録紙の主走査方向の最大をとり，画像メモリ1202のアドレス信号を生成する。

【0014】これらの構成により，Ｘ，Ｙの2次元で表現されていた座標は，画像メモリ1202のアドレスをＡ，副走査方向のアドレスをＹ，印字する記録紙の主走査方向の幅をＬ，主走査方向のアドレスをＸとすると，

５

数１で示される１次元のアドレスに変換されたことになる。

【００１５】

【数１】

$$A = Y * L + X$$

【００１６】Ｘアドレスカウンタ１５０６の値がＸＥレジスタ１５０２の値までカウントアップされると，Ｘコンパレータ１５１２はＸＥＮＤ信号をアサートし，１回の直前ベクトルの描画が終了したことをアドレスコントローラ１５０８に伝え，アドレスコントローラ１５０８は，ＸＥＮをネゲートして，Ｘアドレスカウンタ１５０６のカウントアップを終了する。以上により，画像メモリのアドレス制御を実行する。また，ＣＭＹＫレジスタ１５０５の値は，第１のラッチ１５１４を介してそのまま画像メモリ１２０２に書き込まれる。以上により，ページ記述言語で指定された色の濃度値が描画できる。

【００１７】次に，カラースキャナ１３０１から読み込んだ画像データを画像メモリ１２０２に蓄える動作について説明する。カラースキャナ１３０１からの画像データを取り込む際には，ＣＰＵ１２０１よりモードレジスタ１５１８にスキャナモードの指定情報を登録する。ただし，ページ記述言語で書き込む際には，直線描画モードの指定情報を登録する。そして，モードレジスタ１５１８にスキャナモードの指定情報が登録された場合は，セレクタ１５１９がカラースキャナ１３０１からの画像データをＣＭＹＫレジスタ１５０５に送って書き込む。カラースキャナ１３０１からは，１ページの読み込み中を表す信号ＦＧＡＴＥ信号と，１ライン毎の同期信号であるＬＳＹＮＣ信号と，読み込んだ画像データとしてのレッドデータＲＤＡＴＡ，グリーンデータＧＤＡＴＡ，ブルーデータＢＤＡＴＡが出力される。以上により，カラースキャナ１３０１から読み込んだ画像データが，画像メモリ１２０２に書き込まれる。

【００１８】図１６は，従来に係るカラー画像形成装置のシステム構成を示すブロック図であり，上記各部をシステムアップした構成となっている。すなわち，本システムは，大きくは，ホストコンピュータ１２０，デジタルカラー複写機１６００，プリンタコントローラ１６１０とが接続されて構成されている。また，デジタルカラー複写機１６００は，カラースキャナ１３０１，偽造防止ユニット１３０２，画像処理部１３０３，カラーエンジン１３０４，セレクタ１６０１とから構成されている。また，プリンタコントローラ１６１０には，画像メモリ１２０２が設けられ，プリンタコントローラ１６１０とデジタルカラー複写機１６００のセレクタ１６０１とはＶｉｄｅｏＩ／Ｆにより接続されている。

【００１９】次に，上記偽造防止機能を備えたデジタルカラー複写機とプリンタコントローラを接続した際におけるプリント動作時，スキャナ動作時における画像データの流れについて説明する。デジタルカラー複写機１６

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００を利用して，プリント動作およびスキャナ動作を行う際には，デジタルカラー複写機１６００内部のビデオインターフェイス部分のセレクタ１６０１により，カラースキャナ１３０１からの画像データと，カラーエンジン１３０４への画像データとを切り替える。プリント動作の際には，ＣＭＹＫの画像データがセレクタ１６０１から偽造防止ユニット１３０２および画像処理部１３０３を通過せず直接に，カラーエンジン１３０４へ送られる。また，スキャナ動作の際には，画像データはセレクタ１６０１を介してプリンタコントローラ１６１０内部の画像メモリ１２０２に送られる。

【００２０】

【発明が解決しようとする課題】しかしながら，上記に示されるような従来に係るカラー画像形成装置にあっては，接続されるデジタルカラー複写機に偽造防止ユニットが装着されている場合でも，ホストコンピュータで作成し，プリンタコントローラ内の画像メモリに蓄えられ，印刷命令によりカラーエンジンに送られた画像データは偽造防止ユニットを通らずに印刷出力されてしまうという問題点があった。

【００２１】また，スキャナ機能のあるプリンタコントローラでは，スキャナで読み込んだ画像データをプリンタコントローラ内の画像メモリに一時格納した後，プリント動作を行うと偽造防止ユニットを通過せずに印刷され，通常のコピー動作となり，紙幣等の偽造複写が可能となるという問題点があった。

【００２２】本発明は，上記に鑑みてなされたものであって，ホストコンピュータで作成された画像データであっても，画像スキャナで読み取った画像データであっても，偽造文書の判定を実行可能にして，紙幣等の偽造行為を阻止することを目的とする。

【００２３】

【課題を解決するための手段】上記の目的を達成するために，請求項１に係るカラー画像形成装置にあっては，ホストコンピュータおよび画像スキャナからの画像データに所定の画像処理を施して画像形成を実行するカラー画像形成装置において，前記ホストコンピュータからの画像データと画像スキャナからの画像データを切り替え，該画像データを選択出力するデータ切替手段と，前記データ切替手段により選択出力された画像データが偽造文書であるか否かを判定する偽造文書判定手段とを具備するものである。

【００２４】また，請求項２に係るカラー画像形成装置にあっては，ホストコンピュータおよび画像スキャナからの画像データに所定の画像処理を施して画像形成を実行するカラー画像形成装置において，前記ホストコンピュータからの画像データと画像スキャナからの画像データを切り替え，該画像データを選択出力するデータ切替手段と，前記データ切替手段により選択出力された画像データが偽造文書であるか否かを判定する偽造文書判定

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手段と，前記ホストコンピュータからの画像データを前記偽造文書判定手段で処理した後，画像処理を行わずに作像部に出力するラッチ手段とを具備するものである。

【００２５】また，請求項３に係るカラー画像形成装置にあっては，ホストコンピュータからの画像データを出力制御するためプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段を具備するものである。

【００２６】また，請求項４に係るカラー画像形成装置にあっては，ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段と，前記偽造文書判定手段による判定結果が偽造である場合にその情報を登録する偽造情報登録手段とを具備するものである。

【００２７】また，請求項５に係るカラー画像形成装置にあっては，ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に前記ホストコンピュータからの画像データが偽造文書であるか否かを判定する偽造文書判定手段と，前記偽造文書判定手段による判定結果が偽造である場合にその情報を登録する偽造情報登録手段と，偽造文書と判定された画像データに特定の画像パターンを付加する画像付加手段とを具備するものである。

【００２８】また，請求項６に係るカラー画像形成装置にあっては，ホストコンピュータからの画像データを出力制御するためのプリンタ制御手段と前記プリンタ制御手段からの画像データおよび画像スキャナからの画像データを印字出力する画像形成手段とを有するカラー画像形成装置において，前記プリンタ制御手段に，予め紙幣等の参照画像データを格納する参照画像データ格納手段と，前記ホストコンピュータからの画像データが偽造文書であるか否かを前記参照画像データにより判定する偽造文書判定手段を具備するものである。

【００２９】また，請求項７に係るカラー画像形成装置にあっては，前記参照画像データ格納手段に格納するデータは，テキストデータの大きさ，あるいは（および）間隔，あるいは（および）位置関係，あるいは（および）色データとするものである。

【００３０】また，請求項８に係るカラー画像形成装置にあっては，前記参照画像データ格納手段に格納するデ

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ータは，記録紙の隅から距離，あるいは基準となる点，あるいは（および）線とするものである。

【００３１】

【作用】本発明に係るカラー画像形成装置（請求項１）は，ホストコンピュータからの画像データも画像スキャナからの画像データも全て偽造文書判定手段に入力し，偽造文書であるか否かの判定を実行する。

【００３２】また，本発明に係るカラー画像形成装置（請求項２）は，プリントアウトする際に偽造文書判定手段により判定した後，画像処理経路を迂回することにより，プリントアウト動作の高速化を図る。

【００３３】また，本発明に係るカラー画像形成装置（請求項３）は，偽造文書の判定機能を持たない画像形成手段に，偽造文書判定手段を備えたプリンタ制御手段を接続することにより，ホストコンピュータで作成された画像データの偽造文書判定を実行する。

【００３４】また，本発明に係るカラー画像形成装置（請求項４）は，偽造文書判定手段による判定結果が偽造である場合にその情報を偽造情報登録手段に登録して，プリントアウト不可とする。

【００３５】また，本発明に係るカラー画像形成装置（請求項５）は，偽造文書判定手段による判定結果が偽造である場合にその情報を偽造情報登録手段に登録し，偽造文書と判定された画像に特定の画像パターンを付加することにより，識別し易くなり偽造文書を使用不可となる。

【００３６】また，本発明に係るカラー画像形成装置（請求項６）は，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されている参照画像データにより判定する。

【００３７】また，本発明に係るカラー画像形成装置（請求項７）は，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されているテキストデータの大きさ，あるいは（および）間隔，あるいは（および）位置関係，あるいは（および）色データの参照画像データにより判定する。

【００３８】また，本発明に係るカラー画像形成装置（請求項８）は，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されている記録紙の隅から距離，あるいは基準となる点，あるいは（および）線の参照画像データにより判定する。

【００３９】

【実施例】以下，本発明の一実施例を添付図面を参照して説明する。

〔実施例１〕図１は，実施例１に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。図において，本システムは，デジタルカラー複写機１００とプリンタコントローラ１１０とホストコンンピュータ１２０とにより構成されている。また，デジタルカラー複写機１００は，カラーエンジン

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１０１と，画像処理部１０２と，偽造防止ユニット１０３と，セレクタ１０４と，ビデオコントローラ１０５と，カラースキャナ１０６とから構成されている。また，プリンタコントローラ１１０は，ホストコンピュータ１２０と接続されたＣＰＵ１１１と，画像メモリ１１２と，ビデオコントローラ１１３とがＣＰＵバス１１４を介して接続されている。また，デジタルカラー複写機１００のビデオコントローラ１０５とプリンタコントローラ１１０のビデオコントローラ１１３とはＶｉｄｅｏ１０Ｉ／Ｆにより接続されている。

【００４０】次に，以上のように構成されたシステムの動作について説明する。使用者は，ホストコンピュータ１２０で印刷したい１ページ分の画像データを作成し，プリンタコントローラ１１０に印刷命令を与える。ホストコンピュータ１２０から送られてきた画像データは，テキストデータである場合，図形データである場合，あるいはイメージデータである場合がある。このため，ホストコンピュータ１２０から印刷命令を受け取ったＣＰＵ１１１は，以下の処理を実行する。すなわち，テキストデータや図形データの場合に直線画像も曲線画像もすべてベクトルで表現させているため，一旦，主走査方向２０の直線ベクトルに変換し，図２に示すような記録紙と同じになるように，記録紙の主走査方向，副走査方向の最初のドットを画像メモリ１１２の１番地，その次を２番地というように，画像メモリ１１２へドットイメージで展開する。

【００４１】また，カラー印刷を行うため，画像メモリ１１２は，Ｃ（シアン），Ｍ（マゼンタ），Ｙ（イエロー），Ｋ（ブラック）の４色分用意されており，印字したい画像濃度がそれぞれのアドレスに書き込まれる。な３０お，画像メモリ１１２の構成はＣ，Ｍ，Ｙ，Ｋではなく，Ｒ（レッド），Ｇ（グリーン），Ｂ（ブルー）であってもよい。

【００４２】上記画像メモリ１１２へのイメージデータの展開が１ページ分すべて終了すると，画像メモリ１１２に蓄えた画像データをビデオコントローラ１１３に送出する。ビデオコントローラ１１３では，Ｖｉｄｅｏ１Ｉ／Ｆの通信仕様に合わせるため，画素クロックの違いによるタイミングの補正，入出力レベルの違いによる電圧レベルの補正を実行し，画像データをＶｉｄｅｏＩ／Ｆ４０からデジタルカラー複写機１００側のビデオコントローラ１０５へ出力する。画像データが送られてきたビデオコントローラ１０５は，デジタルカラー複写機１００内部のタイミング，および電圧レベルに合わせてセレクタ１０４に画像データを送る。セレクタ１０４では，複写処理を実行する場合には，スキャナ１０６から送られてきた画像データを選択して出力し，一方，印刷処理を実行する場合には，ビデオコントローラ１０５からの画像データを選択して出力する。

【００４３】また，偽造防止ユニット１０３は，既存の５０

１０

偽造防止処理を実行し，セレクタ１０４により選択された画像データが偽造であるか否かを判別して出力する。また，画像処理部１０２では，通常の複写処理と同様に，ＭＴＦ補正，γ補正，ディザ処理，色補正処理等の画像処理を施し，Ｃ，Ｍ，Ｙ，Ｋで表現された画像データをカラーエンジン１０１に出力する。カラーエンジン１０１では，電子写真プロセスに基づいて，予め帯電された感光体に画像データに対応した光を照射して，感光体に静電潜像を形成し，該静電潜像に帯電したカラートナーを付着（現像）して感光体上にトナーによる画像を形成する。このような作像処理を各色毎に行って，カラー画像を記録紙に転写し，定着して排紙させる。

【００４４】図３は，上記実施例１に係る動作処理を示すフローチャートである。まず，本処理が開始されると，先ず，ホストコンピュータ１２０からＣＰＵ１１１に印刷命令が送られてきたか否かを判断する（Ｓ３０１）。ここで印刷命令が送られてきたと判断したときには，テキストデータ，図形データ，イメージデータを画像メモリ１１２に展開する（Ｓ３０２）。その後，１ページ分の処理が終了したか否かを判断し（Ｓ３０３），１ページ分の処理が終了したと判断したときに，さらに，カラーエンジン１０１が使用可能であるか否かを判断する（Ｓ３０４）。カラーエンジン１０１が使用可能であると判断したときには，上記画像メモリ１１２に転換されている画像データを印刷処理する（Ｓ３０５）。

【００４５】上記ステップ３０５を実行した後，上記印刷対象の画像データが偽造文書であるか否かを判断する（Ｓ３０６）。このステップ３０６において，印刷対象の画像データが偽造文書であると判断したときには，その画像データの印刷を停止し，本処理を終了させる。一方，上記ステップ３０６において，印刷対象の画像データが偽造文書ではないと判断したときには，カラーエンジン１０１により記録紙に画像データを印刷して（Ｓ３０７），本処理を終了させる。

【００４６】〔実施例２〕図４は，実施例２に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。図において，本システムは，図１の構成に対して，デジタルカラー複写機１００内にプリンタ用ラッチ４０１を設けたものであり，他の部分は図１と同一である。すなわち，偽造防止ユニット１０３で偽造の判別を実行するまでの機能については，実施例１と同一である。

【００４７】次に，以上のように構成されたシステムの動作について説明する。偽造防止ユニット１０３から出力された画像データは，複写処理の場合，画像処理部１０２により通常の画像処理を実行する。また，プリント処理である場合には，プリンタコントローラ１１０内で，既に，ディザ処理等の画像処理は行われているため，プリンタ用ラッチ４０１の出力をイネーブルにして，画像処理部１０２を迂回させ，カラーエンジン１０

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1に出力する。

【0048】上記動作についてさらに詳細に説明する。図5は，実施例2に係る動作処理を示すフローチャートである。まず，本処理が開始されると，先ず，ホストコンピュータ120からCPU111に印刷命令が送られてきたか否かを判断する（S501）。ここで印刷命令が送られてきたと判断したときには，テキストデータ，図形データ，イメージデータを画像メモリ112に展開する（S502）。その後，1ページ分の処理が終了したか否かを判断し（S503），1ページ分の処理が終了したと判断したときに，さらに，カラーエンジン101が使用可能であるか否かを判断する（S504）。カラーエンジン101が使用可能であると判断したときには，上記画像メモリ112に転換されている画像データを印刷処理する（S505）。

【0049】上記ステップ505を実行した後，上記印刷対象の画像データが偽造文書であるか否かを判断する（S506）。このステップ506において，印刷対象の画像データが偽造文書であると判断したときには，その画像データの印刷を停止し，本処理を終了させる。一方，上記ステップ506において，印刷対象の画像データが偽造文書ではないと判断したときには，画像処理部102を迂回し（S507），カラーエンジン101により記録紙に画像データを印刷して（S508），本処理を終了させる。

【0050】上記実施例により，プリンタコントローラ110からの画像データに対する偽造防止も行うことができると共に，画像処理にかかる不要な時間がなくなり，さらに，使用者が作成した画像データに近い色が出力することができ，色再現性も向上する。

【0051】〔実施例3〕図6は，実施例3に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。図において，本システムは，図1の構成に対して，デジタルカラー複写機100内にプリンタ用ラッチ401を付加すると共に，プリンタコントローラ110内に偽造防止ユニット601を設けたものであり，他の部分は図1と同一である。

【0052】次に，以上のように構成されたシステムの動作について説明する。画像メモリ112に展開するまでは上記と同様に処理動作を実行する。プリンタコントローラ110から印刷する場合には，ビデオコントローラ113から出力する前に，偽造防止ユニット601を通過させ，偽造の判別処理を行う。したがって，プリンタコントローラ110なしで偽造の判定処理を行った画像データを，デジタルカラー複写機100に出力して印刷を実行する。このように，プリンタ機能の際は，偽造防止機能を持たないデジタルカラー複写機であっても偽造の判定を実行することができる。

【0053】〔実施例4〕図7は，実施例4に係るデジタルカラー複写機およびプリンタコントローラのシステ

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ム構成を示すブロック図である。図において，本システムは，図6の構成に対して，プリンタコントローラ110に設けた偽造防止ユニット601の出力を受ける偽造判別レジスタ701をCPUバス114に接続した構成となっている。また，他の部分は図6と同一である。

【0054】次に，以上のように構成されたシステムの動作について説明する。プリンタコントローラ110によりプリント動作を実行する場合は，上記実施例3と同様にして実行する。セレクタ104は，ビデオコントローラ105へは双方向に出力できるように構成されているため，デジタルカラー複写機100のカラースキャナ106により読み込まれた画像データは，セレクタ104を介してビデオコントローラ105に送られる。また，デジタルカラー複写機100およびプリンタコントローラ110が内蔵するビデオコントローラ103，113も双方向転送が行える構成になっており，ビデオコントローラ113からのスキャナデータは，偽造防止ユニット601で偽造の判定処理を実行する。偽造防止ユニット601を通過した画像データは画像メモリ112に蓄えられ，ホストコンピュータ120のディスプレイ上等に出力される。

【0055】上記において，偽造の判別結果が偽造である場合には，偽造防止ユニット601は偽造判別レジスタ701に偽造であることを登録する。この際には，ホストコンピュータ120上への出力は可能であるが，印刷する際にはCPU111が印刷する前に偽造判別レジスタ701の状態を検出することにより，印刷出力を停止させる。これにより，プリンタ機能だけでなく，プリンタコントローラ110でスキャナ機能も行う際にも偽造防止を実行することができる。

【0056】〔実施例5〕図8は，実施例5に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。図において，本システムは，図7の構成に対して，プリンタコントローラ110に設けた偽造防止ユニット601とビデオコントローラ113の間に，網かけ用セレクタ801を設けた構成となっている。また，他の部分は図7と同一である。

【0057】次に，以上のように構成されたシステムの動作について説明する。偽造防止ユニット601により，偽造であると判定された場合には，上記実施例4と同様に偽造判別レジスタ701に偽造であると登録され，その結果，偽造であると判定された場合に網かけ用セレクタ801で網かけ処理を実行する。網かけ用セレクタ801では，例えば，画像データのビット幅が8ビットであった場合には，画像データを画像濃度の最大値であるFFhとしてビデオコントローラ113に出力することにより，印刷した際には黒ベタの画像が出力される。以上により，偽造防止ユニット601で偽造であると判定された場合には網かけ処理を行い，出力結果を変えることができ，紙幣の偽造による犯罪を未然に防止す

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ることができる。

【0058】〔実施例6〕図9は，実施例6に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。図において，本システムは，図6の構成に対して，偽造防止ユニット601の内部に偽造防止対象のイメージデータを格納したROM901を設けたものである。また，他の部分は図6と同一である。

【0059】次に，以上のように構成されたシステムの動作について説明する。画像データを画像メモリ112に展開し蓄えている間に，CPUバス114が空いている場合には，CPUバス114から既に展開した画像データを偽造防止ユニット601に取り込み，その内部にもつROM901に予めイメージデータで格納されている紙幣等の参照画像データと比較する。そして，この入力して展開された画像データとROM901の参照画像データとの比較結果，明らかに偽造文書ではないと判断された場合には，CPU111に割り込みをかけ，偽造の判定結果を知らせる。ただし，画像メモリ112に展開した画像データとを比較するため，ROM901の中はイメージデータでなくてはならない。

【0060】したがって，プリンタ動作の際には，画像メモリ112に画像データを展開したときに偽造の判断を実行するようにし，印刷時には偽造の判定を不要としたため，処理時間の高速化を図ることができる。ただし，スキャナ動作の際は，画像データをホストコンピュータ120のディスプレイへの転送と，偽造防止ユニット601への比較とでCPUバス114が競合するため，上記実施例4による構成の方が高速になる場合がある。

【0061】次に，ホストコンピュータ120から送られてきたテキストデータ，図形データ，イメージデータを画像メモリ112に展開すると同時に，偽造の判定を実行する際の動作について説明する。プリンタ動作の際には，画像メモリ112への展開は順番は規定されず，ランダムに展開されるため，それぞれのパス（1つ1つの画像データのベクトルの最小単位）について部分的に行う必要がる。例えば，図10のようなテキストデータを比較する場合，“0”のパスに指定された，a，b，cの大きさを偽造防止ユニット601内部のROM901にもち，それを比較して判定する。次いで，“5”と“0”のパスの間隔であるdもROM901にもち，それも大きさと同様に比較して判定する。

【0062】また，テキストデータに限らず，全ての画像データの色データもROM901に蓄え展開する画像データと比較する。なお，図10の例では，色データがRGBで表されているが，CMYKの画像データでも構わない。また，図10に示す例の“券”というテキストデータと“50”というテキストデータとの位置データ（この例では，e，f，g）もROM901に格納し，

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展開する画像データと比較する。このように，ホストコンピュータ120から送られてきたテキストデータ，図形データ，イメージデータを画像メモリ112に展開すると同時に偽造の判定を行うことができると共に，その大きさ，間隔，色データ，配置を検出することにより，偽造の判定の正確性が増し，さらに，参照する紙幣等の画像データをイメージデータとしてもたないため，偽造防止ユニット601内部のROM901の容量が少なくすることができ，コスト低減を図ることもできる。

【0063】さらに，複数の偽造紙幣等を作成する際には，図11に示すような切り込みを入れる基準線，あるいは基準点が入る場合があるため，記録紙の隅からの距離あるいは基準線，基準点の間の距離をROM901に蓄え展開する画像データと比較して判別する。これにより，1枚の記録紙で複数の紙幣の偽造防止を行うことができる。

【0064】
【発明の効果】以上説明したように，本発明に係るカラー画像形成装置（請求項1）によれば，ホストコンピュータからの画像データも画像スキャナからの画像データも全て偽造文書判定手段により偽造文書であるか否かの判定を実行するようにしたため，ホストコンピュータ，画像スキャナからのいずれの画像データの偽造文書の作成を阻止することができる。

【0065】また，本発明に係るカラー画像形成装置（請求項2）によれば，プリントアウトする際に偽造文書判定手段により判定した後，画像処理を行わずに処理するようにしたため，プリントアウト動作の高速化および原稿の色再現性を向上させることができる。

【0066】また，本発明に係るカラー画像形成装置（請求項3）によれば，偽造文書の判定機能を持たない画像形成手段に，偽造文書判定手段を備えたプリンタ制御手段を接続するようにしたため，ホストコンピュータで作成された画像データの偽造文書の作成を阻止することができる。

【0067】また，本発明に係るカラー画像形成装置（請求項4）によれば，偽造文書判定手段による判定結果が偽造である場合にその情報を偽造情報登録手段に登録して，プリントアウト不可とするようにしたため，プリンタ制御手段を介する画像スキャナからの画像データが偽造文書である場合における文書作成を阻止することができる。

【0068】また，本発明に係るカラー画像形成装置（請求項5）によれば，偽造文書判定手段による判定結果が偽造である場合にその情報を偽造情報登録手段に登録し，偽造文書と判定された画像に特定の画像パターンを付加するようにしたため，偽造文書であることが判明できると共に，偽造文書を使用不可とすることができる。

【0069】また，本発明に係るカラー画像形成装置

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（請求項6）によれば，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されている参照画像データにより判定するようにしたため，画像データの判定を高速に実行することができる。

【0070】また，本発明に係るカラー画像形成装置

（請求項7）によれば，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されているテキストデータの大きさ，あるいは（および）間隔，あるいは（および）位置関係，あるいは（および）色データの参照画像データにより判定するようにしたため，偽造防止の判定の正確性が増し，さらに，紙幣等のイメージデータを格納するデータ量に比べて，はるかに格納するデータ量が少なくできるため，処理速度やメモリの経済性が向上する。

【0071】また，本発明に係るカラー画像形成装置

（請求項8）によれば，ホストコンピュータからの画像データが偽造文書であるか否かを予め格納されている記録紙の隅から距離，あるいは基準となる点，あるいは（および）線の参照画像データにより判定するようにしたため，1枚の記録紙で複数枚の紙幣等の偽造を防止でき，さらに，紙幣等のイメージデータを格納するデータ量に比べて，はるかに格納するデータ量が少なくできるため，処理速度やメモリの経済性が向上する。

【図面の簡単な説明】

【図1】実施例1に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

【図2】画像データの記録紙への印字展開形式を示す説明図である。

【図3】実施例1に係る動作処理を示すフローチャートである。

【図4】実施例2に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

【図5】実施例2に係る動作処理を示すフローチャートである。

【図6】実施例3に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

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【図7】実施例4に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

【図8】実施例5に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

【図9】実施例6に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。

【図10】実施例6に係る偽造チェック処理例を示す説明図である。

【図11】実施例6に係る偽造チェック処理例を示す説明図である。

【図12】従来に係るプリンタシステムの構成を示すブロック図である。

【図13】従来に係る偽造防止機能があるデジタルカラー複写機の構成を示すブロック図である。
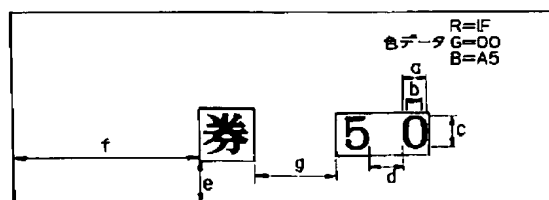
【図14】従来に係るデジタルカラー複写機とカラープリンタコントローラの接続構成を示すブロック図である。

【図15】図14の詳細構成を示すブロック図である。

【図16】従来に係るデジタルカラー複写機およびプリンタコントローラのシステム構成を示すブロック図である。
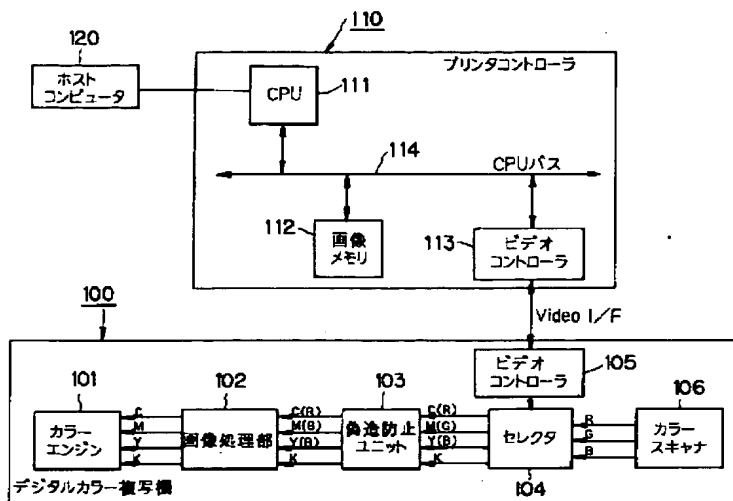
【符号の説明】

100　デジタルカラー複写機
101　カラーエンジン
102　画像処理部
103　偽造防止ユニット
104　セレクタ
106　カラースキャナ
110　プリンタコントローラ
120　ホストコンピュータ
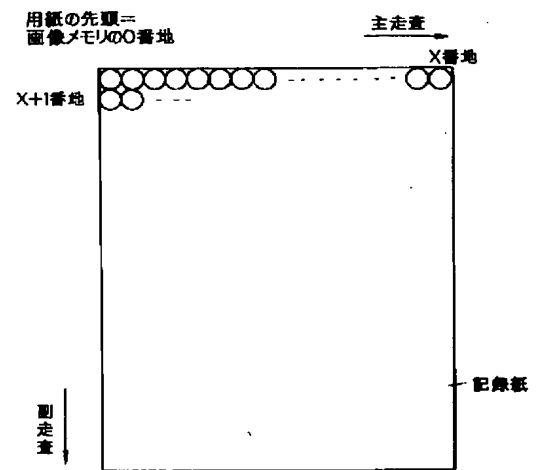401　プリンタ用ラッチ
601　偽造防止ユニット
701　偽造判別レジスタ
801　網かけ用セレクタ
901　ROM

【図10】

【図1】

【図2】
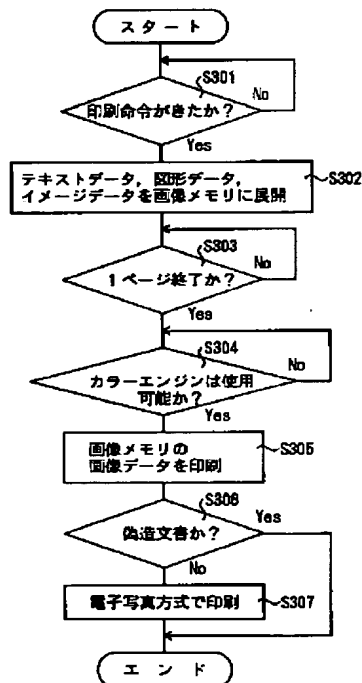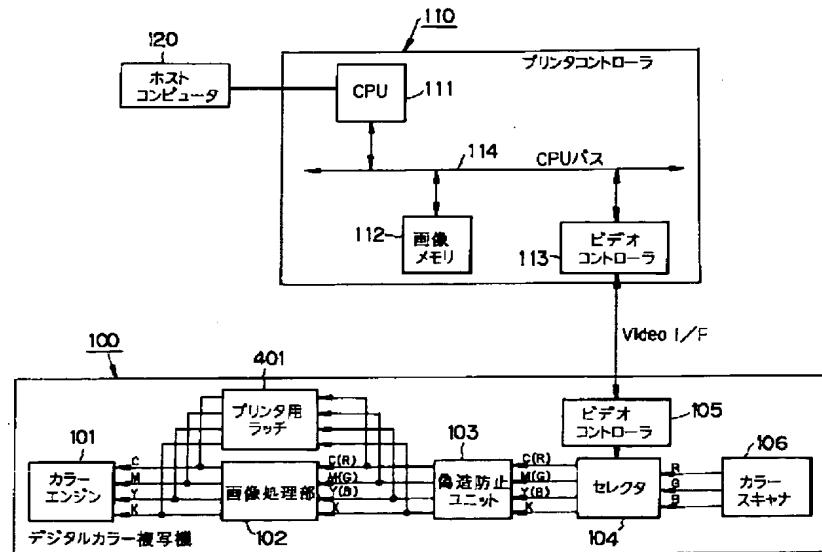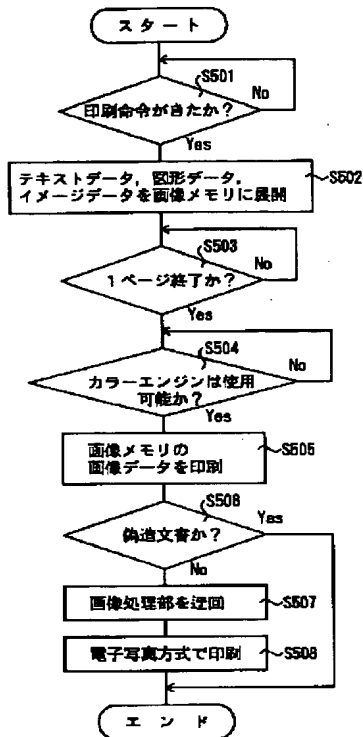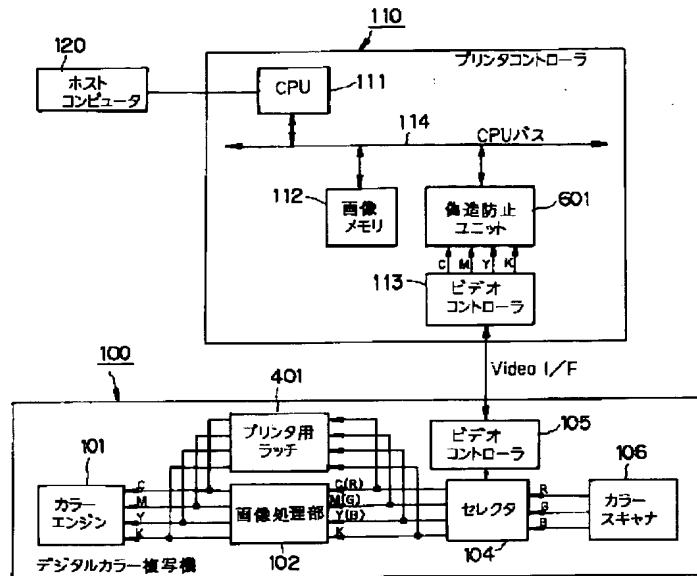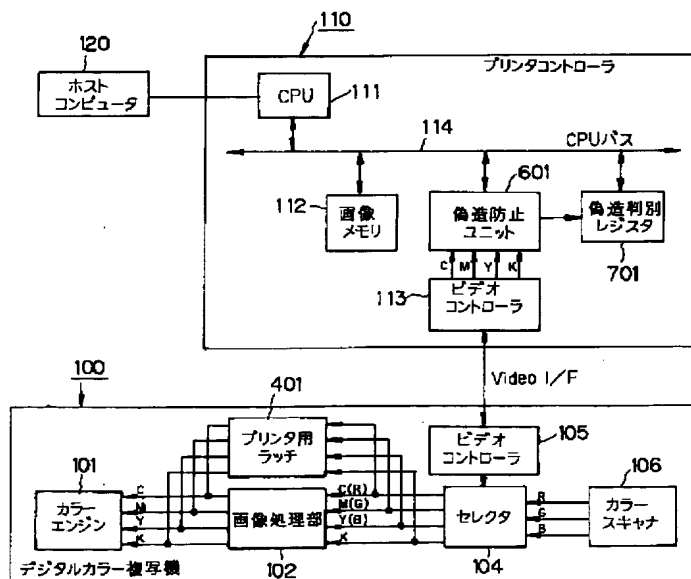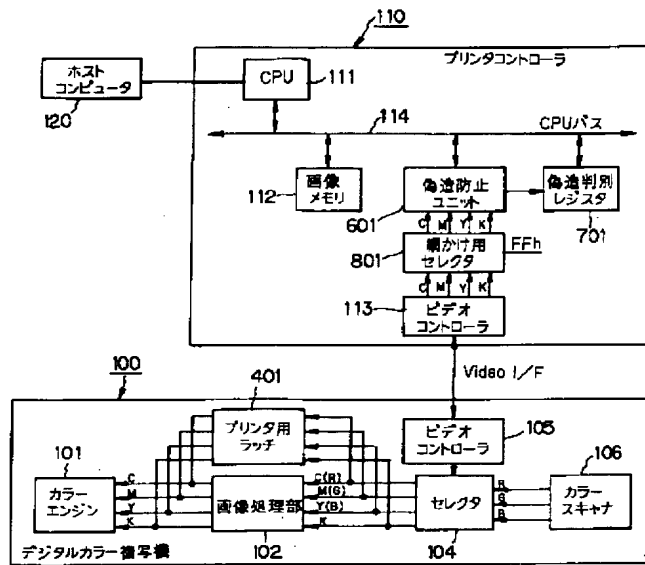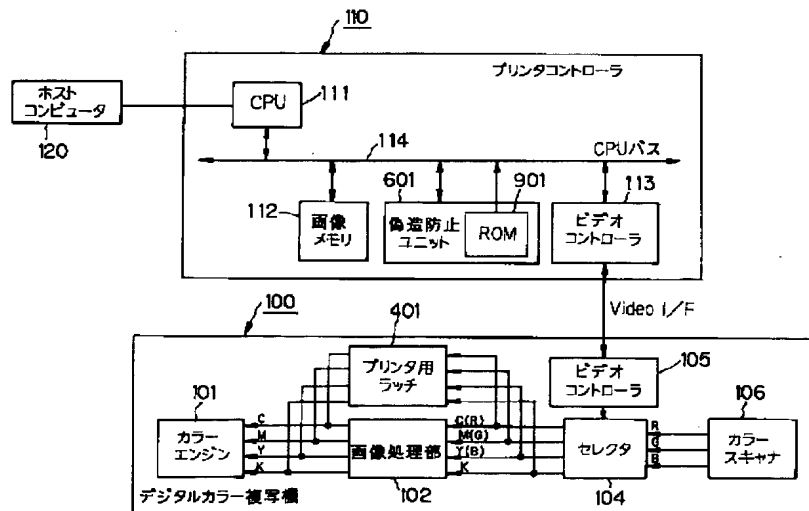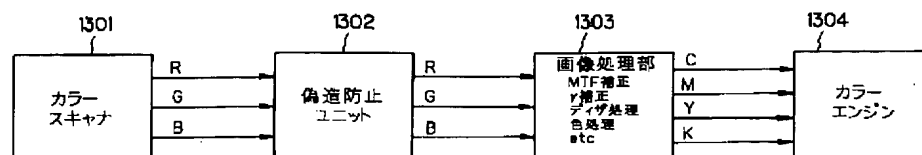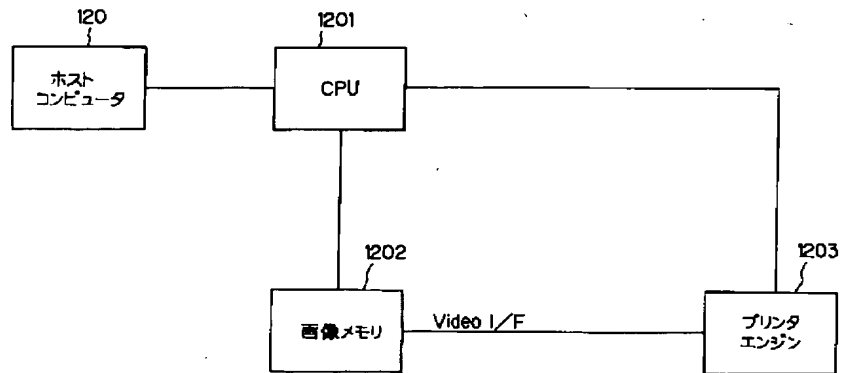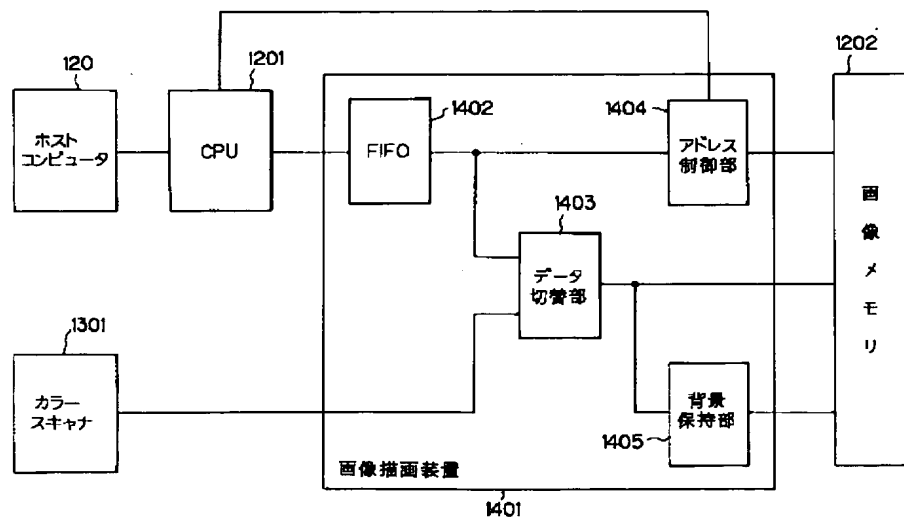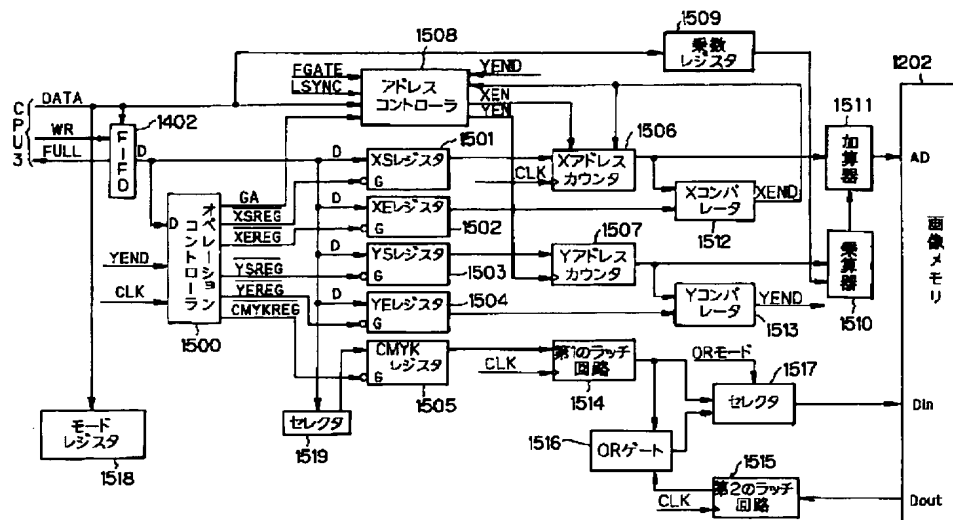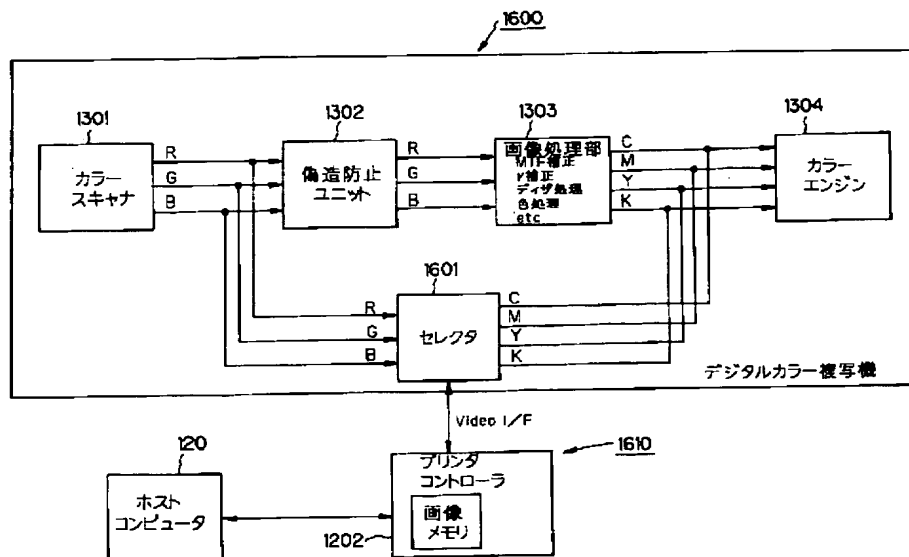
用紙の先頭＝
画像メモリの0番地　　　　　　　　　　主走査

X番地

X+1番地

副走査

記録紙

【図3】

スタート

S301 印刷命令がきたか？ No

Yes

S302 テキストデータ，図形データ，イメージデータを画像メモリに展開

S303 1ページ終了か？ No

Yes

S304 カラーエンジンは使用可能か？ No

Yes

S305 画像メモリの画像データを印刷

S306 偽造文書か？ Yes

No

S307 電子写真方式で印刷

エンド

【図4】

【図11】

記録紙

基準線

【図5】

【図6】

【図7】

【図8】

【図9】

【図13】

(13)

特開平7－288681

【図１２】

```
     120              1201
 ┌─────────┐      ┌────────┐
 │ ホスト   │      │  CPU   │────────────────┐
 │コンピュータ│──────│        │                │
 └─────────┘      └────┬───┘                │
                        │                      │
                     1202                   1203
                 ┌────────┐  Video I/F  ┌────────┐
                 │画像メモリ│──────────────│ プリンタ │
                 │         │              │エンジン  │
                 └────────┘              └────────┘
```
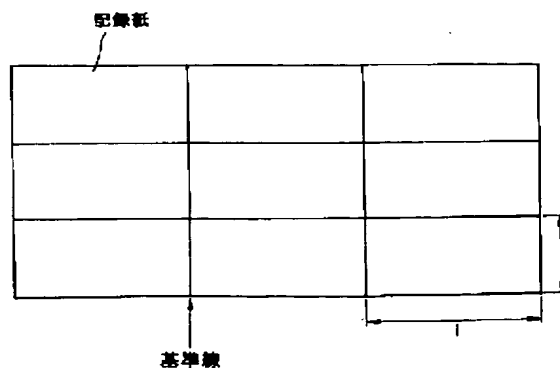
【図１４】

```
     120        1201                                      1202
 ┌─────────┐  ┌──────┐  ┌──────┐1402      1404┌──────┐  ┌──────┐
 │ ホスト   │  │ CPU  │  │ FIFO │        ─│アドレス│  │ 画   │
 │コンピュータ│──│      │──│      │         │制御部 │──│ 像   │
 └─────────┘  └──────┘  └──────┘         └──────┘  │ メ   │
                                    1403              │ モ   │
                              ┌──────┐               │ リ   │
                              │データ │               │      │
     1301                     │切替部 │               │      │
 ┌─────────┐               └──────┘               └──────┘
 │ カラー   │                        1405┌──────┐
 │スキャナ  │──────────────────────────│背景  │
 └─────────┘                           │保持部 │
                  画像描画装置               └──────┘
                        1401
```

【図15】

【図16】

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CLAIMS

[Claim(s)]
[Claim 1] The color-picture formation equipment characterized by to
provide the data change means which changes the image data from said
host computer, and the image data from an image scanner, and carries
out the selection output of this image data in the color-picture
formation equipment which performs a predetermined image processing
to image data from a host computer and an image scanner, and performs
image formation, and a forged document judging means judge whether
the image data by which the selection output was carried out with said
data change means is a forged document.
[Claim 2] In the color picture formation equipment which performs a
predetermined image processing to image data from a host computer
and an image scanner, and performs image formation The data change
means which changes the image data from said host computer, and the
image data from an image scanner, and carries out the selection output
of this image data, A forged document judging means to judge whether
the image data by which the selection output was carried out with said
data change means is a forged document, Color picture formation
equipment characterized by providing a latch means to output to the
imaging section, without performing an image processing after
processing the image data from said host computer with said forged
document judging means.
[Claim 3] Color picture formation equipment characterized by providing a
forged document judging means to judge whether the image data from
said host computer is a forged document to said printer control means
in the color picture formation equipment which has the image formation
means which carries out the printout of the image data from the printer
control means and said printer control means for carrying out the output
control of the image data from a host computer, and the image data

from an image scanner.
[Claim 4] The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, Color picture formation equipment characterized by providing a forged information registration means to register the information when the judgment result by said forged document judging means is forgery.
[Claim 5] The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, Color picture formation equipment characterized by providing a forged information registration means to register the information when the judgment result by said forged document judging means is forgery, and an image addition means to add a specific image pattern to the image data judged to be a forged document.
[Claim 6] Color-picture formation equipment characterized by to provide a reference image data-storage means store reference image data, such as a bill, in said printer control means beforehand, and a forged document judging means judge whether the image data from said host computer is a forged document by said reference image data, in the color-picture formation equipment which has the image-formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out the output control of the image data from a host computer, and the image data from an image scanner.
[Claim 7] The data stored in said reference image data storage means are color picture formation equipment according to claim 6 characterized by being the magnitude, spacing, physical relationship, or (reaching) color data of text data.
[Claim 8] The data stored in said reference image data storage means are color picture formation equipment according to claim 6 characterized by being the point which serves as distance or criteria

from the corner of the recording paper, or (reaching) a line.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention prepares the function to prevent
the forged copy of a bill, negotiable securities, a ticket, etc., and relates
to color picture formation equipments, such as a digital color copying
machine, a color printer, etc. which perform forged check processing of
the image data sent from a host computer or an image scanner.
[0002]
[Description of the Prior Art] The conventional printer structure of a
system is shown in drawing 12 . In drawing, this system consists of a
host computer 120, and CPU1201, an image memory 1202 and printer
engine 1203.
[0003] In the above configuration, a user creates the image for 1 page to
print with a host computer 120. The created this image data is sent to
CPU1201 with a printing instruction of a user, and CPU1201 develops
image data by the bitmapped image to the image memory 1202. If it
finishes developing the image data for 1 page, CPU1201 will output a
printing instruction to printer engine 1203, will send it out to printer
engine 1203 through VideoI/F stored in the image memory 1202, and will
perform printing processing.
[0004] Next, the configuration of a digital color copying machine with a
forged prevention function is shown in drawing 13 . For 1301, as for a
forged prevention unit and 1303, in drawing, a color scanner and 1302
are [the image-processing section and 1304] color engines.
[0005] In the above configuration, if the actuation is explained, with the
color scanner 1301 in the interior of a digital color copying machine, a
manuscript will be read and it will change into the image data of R, G,
and B. It is sent to the forged prevention unit 1302, and in this forged

prevention unit 1302, this ************ image data is compared with image data, such as a bill memorized beforehand, and if not in agreement, it sends the image data sent from the color scanner 1301 to the image-processing section 1303 as it is. On the other hand, when the image data and stored data which were compared are in agreement in the above, sending out of the image data to the image-processing section 1303 is stopped. In the image-processing section 1303, image processings, such as MTF amendment, gamma amendment, color correction, and dithering, are performed, and the image data expressed with C, M, Y, and K is sent out to the color engine 1304. With the color engine 1304, printing is performed based on an electrophotography process and an image is formed in the recording paper.

[0006] Next, a color printer controller is connected with a digital color copying machine, and the system configuration shown in drawing 14 is known as a technique which supports not only printer ability but scanner ability. In drawing, 1401 is image drawing equipment and consists of FIFO1402 which stores each data from CPU1201 temporarily, the data change section 1403, an address control section 1404, and a background attaching part 1405. Specifically, these systems are constituted, as shown in drawing 15 .

[0007] In drawing 15 , XS register with which 1500 stores the operation controller and 1501 stores the drawing starting address (initiation coordinate) of a main scanning direction, XE register with which 1502 stores the drawing ending address (termination coordinate) of a main scanning direction, YS register with which 1503 stores the drawing starting address of the direction of vertical scanning, YE register with which 1504 stores the drawing ending address of the direction of vertical scanning, and 1505 are CMYK registers which store the CMYK data in which the concentration value of color is shown.

[0008] 1506 moreover, the drawing address of a main scanning direction X address counter to generate, Y address counter with which 1507 generates the drawing address of the direction of vertical scanning, the address counter with which 1508 controls the X address counter 1506 and the Y address counter 1507, and 1509 a multiplier The multiplier register to store, The multiplier with which 1510 carries out the multiplication of the counted value (drawing address of the direction of vertical scanning) of the Y address counter 1507 and the multiplier of a multiplier register 1509, and 1511 the counted value (drawing address of a main scanning direction) of the X address counter 1506, and the output of a multiplier 1510 The adder to add, X comparator (horizontal-

scanning directional-comparison machine) with which 1512 tells drawing termination of a main scanning direction, and 1513 are Y comparators (the direction comparator of vertical scanning) which tell drawing termination of the direction of vertical scanning.

[0009] Moreover, the 1st latch circuit 1514 which controls the lead modification light function of an image memory 1202, The memory data control unit which consists of the 2nd latch circuit 1515, the OR gate 1516, and a selector 1517, With the mode register 1518 which stores mode information, in addition, the data-conversion circuit which performs transform processing to the image data read into the color scanner 1301 although not illustrated, Using the dithering circuit which performs dithering to the image data read by the color scanner 1301, and the mode information in a mode register 1518 It has the selector 1519 which chooses any of the data outputted from FIFO1402, a color scanner 1301, a data converter, and a dithering circuit, respectively they are.

[0010] If the actuation in the above-mentioned configuration is explained, a user sends out the image data to CPU1201, after creating the image data for 1 page to print by the Page Description Language represented with a host computer 120 by PostScript. Since, as for this image data, all curves, such as a circle, are also expressed by the vector, the whole of that vector data is rechanged into the straight-line vector of a main scanning direction, and CPU1201 carries out sorting to it, and is sent to image drawing equipment 1401.

[0011] In the above, the image data inputted into image drawing equipment 1401 is altogether sent to each part through FIFO1402. A TAG bit is attached to some data registered into this FIFO1402, and this TAG bit is sent to the operation controller 1500. And it distributes whether the data bit to which the operation controller 1500 follows a TAG bit is data of a coordinate, it is data of concentration, or it is a straight-line drawing instruction.

[0012] Next, when a TAG bit is the drawing instruction of a main scanning direction, and it is the point of a main scanning direction ending [drawing] about it at the XS register 1501, and it is the drawing start point of the direction of vertical scanning about it at the XE register 1502, if it is the image data of CMYK about it at the YS register 1503, it is latched to the CMYK register 1505, respectively.

[0013] Next, the address control section of drawing 14 is explained. If a straight-line drawing op flag stands on a TAG bit, the address controller 1508 of drawing 15 will output the count enable signal XEN to the X

address counter 1506 while the value of the XS register 1506 is loaded to the X address counter 1506 and it loads the value of the YS register 1503 to the Y address counter 1507, respectively. If this XEN is asserted, the X address counter 1506 will count up the address of a main scanning direction synchronizing with a pixel clock. A multiplier 1510 calculates the value of the multiplication beforehand stored in the multiplier register 1509 by CPU1201, and the multiplier of the output of the Y address counter 1507. However, the value of a multiplier register 1509 takes the max of the main scanning direction of the recording paper to print, and generates the address signal of an image memory 1202.

[0014] When X and the coordinate currently expressed by two-dimensional [of Y] set [the address of an image memory 1202 / the address of A and the direction of vertical scanning] the address of L and a main scanning direction to X for the width of face of the main scanning direction of Y and the recording paper to print, it means that it was changed into the 1-dimensional address shown by several 1 by these configurations.

[0015]

[Equation 1]

$$A = Y * L + X$$

[0016] If the value of the X address counter 1506 counts up to the value of the XE register 1502, the X comparator 1512 will assert a XEND signal, and it tells that drawing of a just before [1 time] vector was completed to the address controller 1508, and the address controller 1508 will negate XEN and will end count-up of the X address counter 1506. Address control of an image memory is performed by the above. Moreover, the value of the CMYK register 1505 is written in the image memory 1202 as it is through the 1st latch 1514. By the above, the concentration value of the color specified by the Page Description Language can be drawn.

[0017] Next, the actuation which stores the image data read from the color scanner 1301 in an image memory 1202 is explained. In case the image data from a color scanner 1301 is incorporated, the assignment information on scanner mode is registered into a mode register 1518 from CPU1201. However, in case it writes in by the Page Description Language, the assignment information on straight-line writing mode is registered. And when the assignment information on scanner mode is registered into a mode register 1518, a selector 1519 sends and writes the image data from a color scanner 1301 in the CMYK register 1505.

From a color scanner 1301, the signal FGATE signal showing under 1-page reading, the LSYNC signal which is a synchronizing signal in every line, and the red data RDATA, the Green data GDATA and the blue data BDATA as image data which were read are outputted. The image data read from the color scanner 1301 is written in an image memory 1202 by the above.

[0018] Drawing 16 is the block diagram showing the system configuration of the color picture formation equipment concerning the former, and has composition which carried out the system rise of each part of the above. That is, a host computer 120, the digital color copying machine 1600, and a printer controller 1610 are connected greatly, and this system is constituted. Moreover, the digital color copying machine 1600 consists of a color scanner 1301, the forged prevention unit 1302, the image-processing section 1303, color ENNJIN 1304, and a selector 1601. Moreover, an image memory 1202 is established in a printer controller 1610, and the printer controller 1610 and the selector 1601 of the digital color copying machine 1600 are connected to it by VideoI/F.

[0019] Next, the image data flow at the time of scanner actuation is explained at the time of the print actuation at the time of connecting a digital color copying machine and a printer controller equipped with the above-mentioned forged prevention function. In case print actuation and scanner actuation are performed using the digital color copying machine 1600, the image data from a color scanner 1301 and the image data to the color engine 1304 are changed by the selector 1601 of the video interface part of the digital color copying machine 1600 interior. In the case of print actuation, the image data of CMYK does not pass the forged prevention unit 1302 and the image-processing section 1303 from a selector 1601, but is directly sent to the color engine 1304. Moreover, in the case of scanner actuation, image data is sent to the image memory 1202 of the printer controller 1610 interior through a selector 1601.

[0020]
[Problem(s) to be Solved by the Invention] However, if it was in the color picture formation equipment concerning the former as shown above, even when the digital color copying machine connected was equipped with the forged prevention unit, it created with the host computer, and was stored in the image memory in a printer controller, and the image data sent to the color engine with a printing instruction had the trouble that a printout will be carried out without passing along a forged prevention unit.

[0021] Moreover, in a printer controller with scanner ability, after carrying out the temporary storage of the image data read with the scanner to the image memory in a printer controller, there was a trouble that will be printed without passing a forged prevention unit if print actuation is performed, and became the usual copy actuation, and the forged copy of a bill etc. was attained.

[0022] This invention is made in view of the above, and even if it is the image data read with the image scanner even if it was the image data created with the host computer, it aims at enabling activation of the judgment of a forged document and preventing forged acts, such as a bill.

[0023]

[Means for Solving the Problem] If it is in the color picture formation equipment concerning claim 1 in order to attain the above-mentioned object In the color picture formation equipment which performs a predetermined image processing to image data from a host computer and an image scanner, and performs image formation The data change means which changes the image data from said host computer, and the image data from an image scanner, and carries out the selection output of this image data, A forged document judging means to judge whether the image data by which the selection output was carried out with said data change means is a forged document is provided.

[0024] Moreover, if it is in the color picture formation equipment concerning claim 2 In the color picture formation equipment which performs a predetermined image processing to image data from a host computer and an image scanner, and performs image formation The data change means which changes the image data from said host computer, and the image data from an image scanner, and carries out the selection output of this image data, A forged document judging means to judge whether the image data by which the selection output was carried out with said data change means is a forged document, After processing the image data from said host computer with said forged document judging means, a latch means to output to the imaging section, without performing an image processing is provided.

[0025] Moreover, if it is in the color picture formation equipment concerning claim 3, in order to carry out the output control of the image data from a host computer, in the color picture formation equipment which has the image formation means which carries out the printout of the image data from a printer control means and said printer control means, and the image data from an image scanner, a forged document

judging means to judge whether the image data from said host computer is a forged document to said printer control means is provided.

[0026] Moreover, if it is in the color picture formation equipment concerning claim 4 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, and a forged information registration means to register the information when the judgment result by said forged document judging means is forgery are provided.

[0027] Moreover, if it is in the color picture formation equipment concerning claim 5 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, When the judgment result by said forged document judging means is forgery, a forged information registration means to register the information, and an image addition means to add a specific image pattern to the image data judged to be a forged document are provided.

[0028] Moreover, if it is in the color picture formation equipment concerning claim 6 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A reference image data storage means to store reference image data, such as a bill, in said printer control means beforehand, and a forged document judging means to judge whether the image data from said host computer is a forged document by said reference image data are provided.

[0029] Moreover, if it is in the color picture formation equipment concerning claim 7, let the data stored in said reference image data storage means be the magnitude, spacing, physical relationship, or (reaching) color data of text data.

[0030] Moreover, if it is in the color picture formation equipment concerning claim 8, let the data stored in said reference image data

storage means be the point which serves as distance or criteria from the corner of the recording paper, or (reaching) a line.

[0031]

[Function] All the image data from an image scanner also inputs the image data from a host computer into a forged document judging means, and the color picture formation equipment (claim 1) concerning this invention performs the judgment of whether to be a forged document.

[0032] Moreover, in case the color picture formation equipment (claim 2) concerning this invention is printed out, after judging it with a forged document judging means, it attains improvement in the speed of print-out actuation by bypassing an image-processing path.

[0033] Moreover, the color picture formation equipment (claim 3) concerning this invention performs the forged document judging of the image data created with the host computer by connecting the printer control means equipped with the forged document judging means to an image formation means without the judgment function of a forged document.

[0034] Moreover, the color picture formation equipment (claim 4) concerning this invention registers the information into a forged information registration means, when the judgment result by the forged document judging means is forgery, and it presupposes that print-out is impossible.

[0035] Moreover, by registering the information into a forged information registration means, when the judgment result by the forged document judging means is forgery, and adding a specific image pattern to the image judged to be a forged document, it becomes easy to identify the color picture formation equipment (claim 5) concerning this invention, and it becomes impossible to use it a forged document.

[0036] Moreover, the color picture formation equipment (claim 6) concerning this invention is judged by the reference image data in which it is stored beforehand whether the image data from a host computer is a forged document.

[0037] moreover, the color picture formation equipment (claim 7) concerning this invention is judged by the reference image data of the magnitude of the text data in which it is stored beforehand whether the image data from a host computer is a forged document, spacing, physical relationship, or (and) color data.

[0038] moreover, the color picture formation equipment (claim 8) concerning this invention is judged by the point which serves as
[whether the image data from a host computer is a forged document,

and] distance or criteria from the corner of the detail paper in which it is stored beforehand, or (and) the reference image data of a line.
[0039]
[Example] Hereafter, one example of this invention is explained with reference to an accompanying drawing.
[Example 1] Drawing 1 is the block diagram showing the system configuration of the digital color copying machine concerning an example 1, and a printer controller. This system is constituted by the digital color copying machine 100, a printer controller 110, and the host KONN pewter 120 in drawing. Moreover, the digital color copying machine 100 consists of the color engine 101, the image-processing section 102, the forged prevention unit 103, a selector 104, a video controller 105, and a color scanner 106. Moreover, CPU111 by which the printer controller 110 was connected with the host computer 120, the image memory 112, and the video controller 113 are connected through the CPU bus 114. Moreover, the video controller 105 of the digital color copying machine 100 and the video controller 113 of a printer controller 110 are connected by VideoI/F.
[0040] Next, actuation of the system constituted as mentioned above is explained. A user creates the image data for 1 page to print with a host computer 120, and gives a printing instruction to a printer controller 110. The image data sent from the host computer 120 may be an image data, when it is text data and graphic data. For this reason, CPU111 which received the printing instruction from the host computer 120 performs the following processings. That is, since all straight-line image and curvilinear images are also made to express by the vector in the case of text data or graphic data, it changes into the straight-line vector of a main scanning direction, and the dot of the beginning of the main scanning direction of the recording paper and the direction of vertical scanning is developed by the 1st street of an image memory 112, and the degree is once developed in a dot image to an image memory 112 like the 2nd street so that it may become the same as the recording paper as shown in drawing 2 .
[0041] Moreover, in order to color-print, the image concentration which 4 ****s (black) of C (cyanogen), M (Magenta), Y (yellow), and K are prepared [concentration], and wants to print an image memory 112 is written in each address. In addition, the configuration of an image memory 112 may be C, M, Y, and not K but R (red), G (Green), and B (blue).
[0042] After expansion of the image data to the above-mentioned image

memory 112 is all completed by 1 page, the image data stored in the image memory 112 is sent out to a video controller 113. In a video controller 113, in order to double with the communication link specification of VideoI/F, amendment of the timing by the difference in a pixel clock and amendment of the voltage level by the difference in I/O level are performed, and image data is outputted to the video controller 105 by the side of the digital color copying machine 100 from VideoI/F. The video controller 105 with which image data has been sent sends image data to a selector 104 according to the timing of the digital color copying machine 100 interior, and a voltage level. In a selector 104, the image data sent from the scanner 106 when performing copy processing is chosen and outputted, and on the other hand, in performing printing processing, it chooses and outputs the image data from a video controller 105.

[0043] Moreover, the forged prevention unit 103 performs the existing forged prevention processing, and distinguishes and outputs whether the image data chosen by the selector 104 is forgery. Moreover, in the image-processing section 102, like the usual copy processing, image processings, such as MTF amendment, gamma amendment, dithering, and color correction processing, are performed, and the image data expressed by C, M, Y, and K is outputted to the color engine 101. With the color engine 101, based on an electrophotography process, the light corresponding to image data is irradiated at the photo conductor charged beforehand, an electrostatic latent image is formed in a photo conductor, the color toner charged in this electrostatic latent image is adhered (development), and the image by the toner is formed on a photo conductor. Such imaging processing is performed for every color, and a color picture is imprinted on the recording paper and made to establish and deliver to it.

[0044] Drawing 3 is a flow chart which shows the processing of operation concerning the above-mentioned example 1. First, initiation of this processing judges whether the printing instruction has been sent to CPU111 from the host computer 120 (S301). When it judges that the printing instruction has been sent here, text data, graphic data, and an image data are developed to an image memory 112 (S302). Then, when it judges whether processing for 1 page was completed (S303) and judges that processing for 1 page was completed, it judges whether the color engine 101 is still more nearly usable (S304). When it judges that the color engine 101 is usable, printing processing of the image data converted into the above-mentioned image memory 112 is carried out

(S305).

[0045] After performing the above-mentioned step 305, it judges whether the image data for [above-mentioned] printing is a forged document (S306). In this step 306, when it judges that the image data for printing is a forged document, printing of that image data is suspended and this processing is terminated. On the other hand, when it judges that the image data for printing is not a forged document in the above-mentioned step 306, image data is printed on the detail paper with the color engine 101 (S307), and this processing is terminated.

[0046] [Example 2] Drawing 4 is the block diagram showing the system configuration of the digital color copying machine concerning an example 2, and a printer controller. In drawing, this system forms the latch 401 for printers in the digital color copying machine 100 to the configuration of drawing 1 , and other parts are the same as that of drawing 1 . That is, about a function until it performs counterfeit distinction in the forged prevention unit 103, it is the same as that of an example 1.

[0047] Next, actuation of the system constituted as mentioned above is explained. In copy processing, the image data outputted from the forged prevention unit 103 performs the usual image processing by the image-processing section 102. Moreover, within the PURITTA controller 110, in being print processing, since it is carried out, image processings, such as dithering, enable the output of the latch 401 for printers, and detour the image-processing section 102, and it already outputs them to the color engine 101.

[0048] The above-mentioned actuation is further explained to a detail. Drawing 5 is a flow chart which shows the processing of operation concerning an example 2. First, initiation of this processing judges whether the printing instruction has been sent to CPU111 from the host computer 120 (S501). When it judges that the printing instruction has been sent here, text data, graphic data, and an image data are developed to an image memory 112 (S502). Then, when it judges whether processing for 1 page was completed (S503) and judges that processing for 1 page was completed, it judges whether the color engine 101 is still more nearly usable (S504). When it judges that the color engine 101 is usable, printing processing of the image data converted into the above-mentioned image memory 112 is carried out (S505).

[0049] After performing the above-mentioned step 505, it judges whether the image data for [above-mentioned] printing is a forged document (S506). In this step 506, when it judges that the image data for printing is a forged document, printing of that image data is

suspended and this processing is terminated. On the other hand, when it judges that the image data for printing is not a forged document in the above-mentioned step 506, the image-processing section 102 is bypassed (S507), image data is printed on the detail paper with the color engine 101 (S508), and this processing is terminated.

[0050] According to the above-mentioned example, while also being able to perform forged prevention to the image data from a printer controller 110, the unnecessary time amount concerning an image processing is lost, the color near the image data which the user created can be outputted further, and color repeatability also improves.

[0051] [Example 3] Drawing 6 is the block diagram showing the system configuration of the digital color copying machine concerning an example 3, and a printer controller. In drawing, while this system adds the latch 401 for printers in the digital color copying machine 100 to the configuration of drawing 1 , the forged prevention unit 601 is formed in a printer controller 110, and other parts are the same as that of drawing 1 .

[0052] Next, actuation of the system constituted as mentioned above is explained. Processing actuation is performed like the above until it develops to an image memory 112. In printing from a printer controller 110, before outputting from a video controller 113, the forged prevention unit 601 is passed and it performs counterfeit distinction processing. Therefore, the image data which performed counterfeit judgment processing without the printer controller 110 is outputted to the digital color copying machine 100, and printing is performed. Thus, in the case of printer ability, even if it is a digital color copying machine without a forged prevention function, a counterfeit judgment can be performed.

[0053] [Example 4] Drawing 7 is the block diagram showing the system configuration of the digital color copying machine concerning an example 4, and a printer controller. In drawing, this system has the composition of having connected to the CPU bus 114 the forged distinction register 701 which undergoes the output of the forged prevention unit 601 prepared in the printer controller 110, to the configuration of drawing 6 . Moreover, other parts are the same as that of drawing 6 .

[0054] Next, actuation of the system constituted as mentioned above is explained. When performing print actuation with a printer controller 110, it performs like the above-mentioned example 3. Since the selector 104 is constituted so that it can output to a video controller 105 bidirectionally, the image data read by the color scanner 106 of the digital color copying machine 100 is sent to a video controller 105

through a selector 104. Moreover, the video controller 103,113 which the digital color copying machine 100 and a printer controller 110 contain also has the composition that a bidirectional transfer can be performed, and the scanner data from a video controller 113 perform counterfeit judgment processing in the forged prevention unit 601. The image data which passed the forged prevention unit 601 is stored in an image memory 112, and is outputted to the display up of a host computer 120 etc.

[0055] In the above, when a counterfeit distinction result is forgery, the forged prevention unit 601 registers that it is forgery into the forged distinction register 701. In this case, although the output of a up to [a host computer 120] is possible, in case it prints, before CPU111 prints, a printout is stopped by detecting the condition of the forged distinction register 701. Thereby, forged prevention can be performed not only printer ability but in case a printer controller 110 also performs scanner ability.

[0056] [Example 5] Drawing 8 is the block diagram showing the system configuration of the digital color copying machine concerning an example 5, and a printer controller. In drawing, this system has the forged prevention unit 601 prepared in the printer controller 110, and the composition of having formed the selector 801 for shading between video controllers 113, to the configuration of drawing 7 . Moreover, other parts are the same as that of drawing 7 .

[0057] Next, actuation of the system constituted as mentioned above is explained. When judged with it registering that it is forgery with the forged distinction register 701 like the above-mentioned example 4, consequently being forgery, when judged with it being forgery with the forged prevention unit 601, shading processing is performed by the selector 801 for shading. In the selector 801 for shading, when the bit width of face of image data is 8 bits, when it prints, a black solid image is outputted by outputting image data to a video controller 113 as FFh which is the maximum of image concentration, for example. When it is judged with it being forgery in the forged prevention unit 601 by the above, shading processing can be performed, an output can be changed, and the crime by forgery of a bill can be prevented beforehand.

[0058] [Example 6] Drawing 9 is the block diagram showing the system configuration of the digital color copying machine concerning an example 6, and a printer controller. In drawing, this system forms ROM901 which stored the image data for forged prevention in the interior of the forged prevention unit 601 to the configuration of drawing 6 . Moreover, other

parts are the same as that of <u>drawing 6</u> .

[0059] Next, actuation of the system constituted as mentioned above is explained. When the CPU bus 114 is vacant while developing and storing image data in the image memory 112, the image data already developed from the CPU bus 114 is incorporated to the forged prevention unit 601, and it compares with reference image data, such as a bill beforehand stored in ROM901 which it has in the interior by the image data. And the comparison result of this image data and reference image data of ROM901 that were inputted and developed, and when it is judged that it is not a forged document clearly, interruption is applied to CPU111 and a counterfeit judgment result is told. However, in order to compare the image data developed to the image memory 112, the inside of ROM901 must be an image data.

[0060] Therefore, when image data is developed to an image memory 112, it enables it to perform counterfeit decision, in the case of printer actuation, at the time of printing, a counterfeit judgment can be written as it is unnecessary, and improvement in the speed of the processing time can be attained at it. However, in the case of scanner actuation, since the CPU bus 114 competes image data by the transfer to the display of a host computer 120, and the comparison to the forged prevention unit 601, the direction of the configuration by the above-mentioned example 4 may become a high speed.

[0061] Next, the actuation at the time of performing a counterfeit judgment is explained at the same time it develops the text data and the graphic data which have been sent from the host computer 120, and an image data to an image memory 112. The need of carrying out selectively about each bus (smallest unit of the vector of each image data) since sequence is not specified in the case of printer actuation but the expansion to an image memory 112 is developed at random is **. For example, when comparing text data like <u>drawing 10</u> , it has the magnitude of a, b, and c specified as the pass of "0" in ROM901 of the forged prevention unit 601 interior, and it is compared and judged. Subsequently, it has in ROM901, and it as well as magnitude is compared and also judges d which is spacing of the pass of "5" and "0."

[0062] Moreover, it compares with the image data which stores not only text data but the color data of all image data in ROM901, and develops them. In addition, although color data are expressed by RGB by the example of <u>drawing 10</u> , the image data of CMYK is sufficient. Moreover, the location data (this example e, f, g) of the text data the "ticket" of the example shown in <u>drawing 10</u> , and the text data "50" are also

stored in ROM901, and it compares with the image data to develop. Thus, while developing the text data and the graphic data which have been sent from the host computer 120, and an image data to an image memory 112 and being able to judge forgery Since the accuracy of a counterfeit judgment does not have image data, such as increase and a bill to refer to, as an image data further by detecting the magnitude, spacing, color data, and arrangement, The capacity of ROM901 of the forged prevention unit 601 interior can lessen, and cost reduction can also be planned.

[0063] Furthermore, since the datum line into which slitting as shown in drawing 11 is put, or a reference point may enter in case two or more forged notes etc. are created, it distinguishes as compared with the distance from the corner of the recording paper or the datum line, and the image data that stores the distance between reference points in ROM901, and is developed. Thereby, forged prevention of two or more bills with one sheet of recording paper can be performed.

[0064]

[Effect of the Invention] As explained above, according to the color picture formation equipment (claim 1) concerning this invention, the image data from a host computer can also prevent creation of the forged document of which image data from a host computer and an image scanner, in order for all the image data from an image scanner to also perform the judgment of whether to be a forged document with a forged document judging means.

[0065] Moreover, since it was made to process according to the color picture formation equipment (claim 2) concerning this invention, without performing an image processing after judging with a forged document judging means, when printed out, improvement in the speed of print-out actuation and the color repeatability of a manuscript can be raised.

[0066] Moreover, since the printer control means equipped with the forged document judging means was connected to the image formation means without the judgment function of a forged document according to the color picture formation equipment (claim 3) concerning this invention, creation of the forged document of the image data created with the host computer can be prevented.

[0067] Moreover, when the judgment result by the forged document judging means is forgery, be [made since / it / according to the color picture formation equipment (claim 4) concerning this invention,] the information is registered into a forged information registration means and print-out is impossible, document preparation in case the image

data from the image scanner through a printer control means is a forged document can be prevented.

[0068] Moreover, according to the color picture formation equipment (claim 5) concerning this invention, when the judgment result by the forged document judging means is forgery, the information is registered into a forged information registration means, and since the specific image pattern was added to the image judged to be a forged document, while being able to become clear, it can make it impossible [an activity of a forged document] to be a forged document.

[0069] Moreover, since it was made to judge by the reference image data in which it is stored beforehand whether the image data from a host computer is a forged document according to the color picture formation equipment (claim 6) concerning this invention, the judgment of image data can be performed at a high speed.

[0070] moreover, the magnitude of the text data in which it is stored beforehand according to the color picture formation equipment (claim 7) concerning this invention whether the image data from a host computer is a forged document, spacing, or (and) physical relationship -- Or (reaching) since the amount of data which the accuracy of a judgment of forged prevention stores far further compared with increase and the amount of data which stores image datas, such as a bill, since it was made to judge by the reference image data of color data is made few, the profitability of processing speed or memory improves.

[0071] moreover, whether the image data from a host computer is a forged document by the point which serves as distance or criteria from the corner of the detail paper in which it is stored beforehand, or (and) the reference image data of a line according to the color picture formation equipment (claim 8) concerning this invention Since it was made to judge, forgery of two or more bills etc. can be prevented with one sheet of detail paper, and further, since the amount of data far stored compared with the amount of data which stores image datas, such as a bill, is made few, the profitability of processing speed or memory improves.

[Translation done.]

* NOTICES *

TECHNICAL FIELD

[Industrial Application] This invention prepares the function to prevent
the forged copy of a bill, negotiable securities, a ticket, etc., and relates
to color picture formation equipments, such as a digital color copying
machine, a color printer, etc. which perform forged check processing of
the image data sent from a host computer or an image scanner.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] The conventional printer structure of a
system is shown in drawing 12 . In drawing, this system consists of a
host computer 120, and CPU1201, an image memory 1202 and printer
engine 1203.
[0003] In the above configuration, a user creates the image for 1 page to
print with a host computer 120. The created this image data is sent to
CPU1201 with a printing instruction of a user, and CPU1201 develops
image data by the bitmapped image to the image memory 1202. If it
finishes developing the image data for 1 page, CPU1201 will output a
printing instruction to printer engine 1203, will send it out to printer
engine 1203 through VideoI/F stored in the image memory 1202, and will
perform printing processing.
[0004] Next, the configuration of a digital color copying machine with a
forged prevention function is shown in drawing 13 . For 1301, as for a
forged prevention unit and 1303, in drawing, a color scanner and 1302
are [the image-processing section and 1304] color engines.
[0005] In the above configuration, if the actuation is explained, with the
color scanner 1301 in the interior of a digital color copying machine, a
manuscript will be read and it will change into the image data of R, G,
and B. It is sent to the forged prevention unit 1302, and in this forged
prevention unit 1302, this *********** image data is compared with
image data, such as a bill memorized beforehand, and if not in
agreement, it sends the image data sent from the color scanner 1301 to
the image-processing section 1303 as it is. On the other hand, when the
image data and stored data which were compared are in agreement in
the above, sending out of the image data to the image-processing
section 1303 is stopped. In the image-processing section 1303, image
processings, such as MTF amendment, gamma amendment, color

correction, and dithering, are performed, and the image data expressed with C, M, Y, and K is sent out to the color engine 1304. With the color engine 1304, printing is performed based on an electrophotography process and an image is formed in the recording paper.

[0006] Next, a color printer controller is connected with a digital color copying machine, and the system configuration shown in drawing 14 is known as a technique which supports not only printer ability but scanner ability. In drawing, 1401 is image drawing equipment and consists of FIFO1402 which stores each data from CPU1201 temporarily, the data change section 1403, an address control section 1404, and a background attaching part 1405. Specifically, these systems are constituted, as shown in drawing 15 .

[0007] In drawing 15 , XS register with which 1500 stores the operation controller and 1501 stores the drawing starting address (initiation coordinate) of a main scanning direction, XE register with which 1502 stores the drawing ending address (termination coordinate) of a main scanning direction, YS register with which 1503 stores the drawing starting address of the direction of vertical scanning, YE register with which 1504 stores the drawing ending address of the direction of vertical scanning, and 1505 are CMYK registers which store the CMYK data in which the concentration value of color is shown.

[0008] 1506 moreover, the drawing address of a main scanning direction X address counter to generate, Y address counter with which 1507 generates the drawing address of the direction of vertical scanning, the address counter with which 1508 controls the X address counter 1506 and the Y address counter 1507, and 1509 a multiplier The multiplier register to store, The multiplier with which 1510 carries out the multiplication of the counted value (drawing address of the direction of vertical scanning) of the Y address counter 1507 and the multiplier of a multiplier register 1509, and 1511 the counted value (drawing address of a main scanning direction) of the X address counter 1506, and the output of a multiplier 1510 The adder to add, X comparator (horizontal-scanning directional-comparison machine) with which 1512 tells drawing termination of a main scanning direction, and 1513 are Y comparators (the direction comparator of vertical scanning) which tell drawing termination of the direction of vertical scanning.

[0009] Moreover, the 1st latch circuit 1514 which controls the lead modification light function of an image memory 1202, The memory data control unit which consists of the 2nd latch circuit 1515, the OR gate 1516, and a selector 1517, With the mode register 1518 which stores

mode information, in addition, the data-conversion circuit which performs transform processing to the image data read into the color scanner 1301 although not illustrated, Using the dithering circuit which performs dithering to the image data read by the color scanner 1301, and the mode information in a mode register 1518 It has the selector 1519 which chooses any of the data outputted from FIFO1402, a color scanner 1301, a data converter, and a dithering circuit, respectively they are.

[0010] If the actuation in the above-mentioned configuration is explained, a user sends out the image data to CPU1201, after creating the image data for 1 page to print by the Page Description Language represented with a host computer 120 by PostScript. Since, as for this image data, all curves, such as a circle, are also expressed by the vector, the whole of that vector data is rechanged into the straight-line vector of a main scanning direction, and CPU1201 carries out sorting to it, and is sent to image drawing equipment 1401.

[0011] In the above, the image data inputted into image drawing equipment 1401 is altogether sent to each part through FIFO1402. A TAG bit is attached to some data registered into this FIFO1402, and this TAG bit is sent to the operation controller 1500. And it distributes whether the data bit to which the operation controller 1500 follows a TAG bit is data of a coordinate, it is data of concentration, or it is a straight-line drawing instruction.

[0012] Next, when a TAG bit is the drawing instruction of a main scanning direction, and it is the point of a main scanning direction ending [drawing] about it at the XS register 1501, and it is the drawing start point of the direction of vertical scanning about it at the XE register 1502, if it is the image data of CMYK about it at the YS register 1503, it is latched to the CMYK register 1505, respectively.

[0013] Next, the address control section of drawing 14 is explained. If a straight-line drawing op flag stands on a TAG bit, the address controller 1508 of drawing 15 will output the count enable signal XEN to the X address counter 1506 while the value of the XS register 1506 is loaded to the X address counter 1506 and it loads the value of the YS register 1503 to the Y address counter 1507, respectively. If this XEN is asserted, the X address counter 1506 will count up the address of a main scanning direction synchronizing with a pixel clock. A multiplier 1510 calculates the value of the multiplication beforehand stored in the multiplier register 1509 by CPU1201, and the multiplier of the output of the Y address counter 1507. However, the value of a multiplier register

1509 takes the max of the main scanning direction of the recording paper to print, and generates the address signal of an image memory 1202.

[0014] When X and the coordinate currently expressed by two-dimensional [of Y] set [the address of an image memory 1202 / the address of A and the direction of vertical scanning] the address of L and a main scanning direction to X for the width of face of the main scanning direction of Y and the recording paper to print, it means that it was changed into the 1-dimensional address shown by several 1 by these configurations.

[0015]
[Equation 1]
$$A = Y * L + X$$

[0016] If the value of the X address counter 1506 counts up to the value of the XE register 1502, the X comparator 1512 will assert a XEND signal, and it tells that drawing of a just before [1 time] vector was completed to the address controller 1508, and the address controller 1508 will negate XEN and will end count-up of the X address counter 1506. Address control of an image memory is performed by the above. Moreover, the value of the CMYK register 1505 is written in the image memory 1202 as it is through the 1st latch 1514. By the above, the concentration value of the color specified by the Page Description Language can be drawn.

[0017] Next, the actuation which stores the image data read from the color scanner 1301 in an image memory 1202 is explained. In case the image data from a color scanner 1301 is incorporated, the assignment information on scanner mode is registered into a mode register 1518 from CPU1201. However, in case it writes in by the Page Description Language, the assignment information on straight-line writing mode is registered. And when the assignment information on scanner mode is registered into a mode register 1518, a selector 1519 sends and writes the image data from a color scanner 1301 in the CMYK register 1505. From a color scanner 1301, the signal FGATE signal showing under 1-page reading, the LSYNC signal which is a synchronizing signal in every line, and the red data RDATA, the Green data GDATA and the blue data BDATA as image data which were read are outputted. The image data read from the color scanner 1301 is written in an image memory 1202 by the above.

[0018] Drawing 16 is the block diagram showing the system configuration of the color picture formation equipment concerning the former, and has

composition which carried out the system rise of each part of the above. That is, a host computer 120, the digital color copying machine 1600, and a printer controller 1610 are connected greatly, and this system is constituted. Moreover, the digital color copying machine 1600 consists of a color scanner 1301, the forged prevention unit 1302, the image-processing section 1303, color ENNJIN 1304, and a selector 1601. Moreover, an image memory 1202 is established in a printer controller 1610, and the printer controller 1610 and the selector 1601 of the digital color copying machine 1600 are connected to it by VideoI/F.
[0019] Next, the image data flow at the time of scanner actuation is explained at the time of the print actuation at the time of connecting a digital color copying machine and a printer controller equipped with the above-mentioned forged prevention function. In case print actuation and scanner actuation are performed using the digital color copying machine 1600, the image data from a color scanner 1301 and the image data to the color engine 1304 are changed by the selector 1601 of the video interface part of the digital color copying machine 1600 interior. In the case of print actuation, the image data of CMYK does not pass the forged prevention unit 1302 and the image-processing section 1303 from a selector 1601, but is directly sent to the color engine 1304. Moreover, in the case of scanner actuation, image data is sent to the image memory 1202 of the printer controller 1610 interior through a selector 1601.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, according to the color
picture formation equipment (claim 1) concerning this invention, the
image data from a host computer can also prevent creation of the
forged document of which image data from a host computer and an
image scanner, in order for all the image data from an image scanner to
also perform the judgment of whether to be a forged document with a
forged document judging means.
[0065] Moreover, since it was made to process according to the color
picture formation equipment (claim 2) concerning this invention, without
performing an image processing after judging with a forged document
judging means, when printed out, improvement in the speed of print-out
actuation and the color repeatability of a manuscript can be raised.
[0066] Moreover, since the printer control means equipped with the
forged document judging means was connected to the image formation
means without the judgment function of a forged document according to
the color picture formation equipment (claim 3) concerning this
invention, creation of the forged document of the image data created
with the host computer can be prevented.
[0067] Moreover, when the judgment result by the forged document
judging means is forgery, be [made since / it / according to the color
picture formation equipment (claim 4) concerning this invention,] the
information is registered into a forged information registration means
and print-out is impossible, document preparation in case the image
data from the image scanner through a printer control means is a forged
document can be prevented.
[0068] Moreover, according to the color picture formation equipment
(claim 5) concerning this invention, when the judgment result by the
forged document judging means is forgery, the information is registered

into a forged information registration means, and since the specific image pattern was added to the image judged to be a forged document, while being able to become clear, it can make it impossible [an activity of a forged document] to be a forged document.

[0069] Moreover, since it was made to judge by the reference image data in which it is stored beforehand whether the image data from a host computer is a forged document according to the color picture formation equipment (claim 6) concerning this invention, the judgment of image data can be performed at a high speed.

[0070] moreover, the magnitude of the text data in which it is stored beforehand according to the color picture formation equipment (claim 7) concerning this invention whether the image data from a host computer is a forged document, spacing, or (and) physical relationship -- Or (reaching) since the amount of data which the accuracy of a judgment of forged prevention stores far further compared with increase and the amount of data which stores image datas, such as a bill, since it was made to judge by the reference image data of color data is made few, the profitability of processing speed or memory improves.

[0071] moreover, whether the image data from a host computer is a forged document by the point which serves as distance or criteria from the corner of the detail paper in which it is stored beforehand, or (and) the reference image data of a line according to the color picture formation equipment (claim 8) concerning this invention Since it was made to judge, forgery of two or more bills etc. can be prevented with one sheet of detail paper, and further, since the amount of data far stored compared with the amount of data which stores image datas, such as a bill, is made few, the profitability of processing speed or memory improves.

[Translation done.]

* NOTICES *

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, if it was in the
color picture formation equipment concerning the former as shown
above, even when the digital color copying machine connected was
equipped with the forged prevention unit, it created with the host
computer, and was stored in the image memory in a printer controller,
and the image data sent to the color engine with a printing instruction
had the trouble that a printout will be carried out without passing along a
forged prevention unit.
[0021] Moreover, in a printer controller with scanner ability, after
carrying out the temporary storage of the image data read with the
scanner to the image memory in a printer controller, there was a trouble
that will be printed without passing a forged prevention unit if print
actuation is performed, and became the usual copy actuation, and the
forged copy of a bill etc. was attained.
[0022] This invention is made in view of the above, and even if it is the
image data read with the image scanner even if it was the image data
created with the host computer, it aims at enabling activation of the
judgment of a forged document and preventing forged acts, such as a
bill.

[Translation done.]

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MEANS

[Means for Solving the Problem] If it is in the color picture formation
equipment concerning claim 1 in order to attain the above-mentioned
object In the color picture formation equipment which performs a
predetermined image processing to image data from a host computer
and an image scanner, and performs image formation The data change
means which changes the image data from said host computer, and the
image data from an image scanner, and carries out the selection output
of this image data, A forged document judging means to judge whether
the image data by which the selection output was carried out with said
data change means is a forged document is provided.
[0024] Moreover, if it is in the color picture formation equipment
concerning claim 2 In the color picture formation equipment which
performs a predetermined image processing to image data from a host
computer and an image scanner, and performs image formation The data
change means which changes the image data from said host computer,
and the image data from an image scanner, and carries out the selection
output of this image data, A forged document judging means to judge
whether the image data by which the selection output was carried out
with said data change means is a forged document, After processing the
image data from said host computer with said forged document judging
means, a latch means to output to the imaging section, without
performing an image processing is provided.
[0025] Moreover, if it is in the color picture formation equipment
concerning claim 3, in order to carry out the output control of the image
data from a host computer, in the color picture formation equipment
which has the image formation means which carries out the printout of
the image data from a printer control means and said printer control
means, and the image data from an image scanner, a forged document

judging means to judge whether the image data from said host computer is a forged document to said printer control means is provided.

[0026] Moreover, if it is in the color picture formation equipment concerning claim 4 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, and a forged information registration means to register the information when the judgment result by said forged document judging means is forgery are provided.

[0027] Moreover, if it is in the color picture formation equipment concerning claim 5 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A forged document judging means to judge whether the image data from said host computer is a forged document to said printer control means, When the judgment result by said forged document judging means is forgery, a forged information registration means to register the information, and an image addition means to add a specific image pattern to the image data judged to be a forged document are provided.

[0028] Moreover, if it is in the color picture formation equipment concerning claim 6 The image data from a host computer In the color picture formation equipment which has the image formation means which carries out the printout of the image data from the printer control means and said printer control means for carrying out an output control, and the image data from an image scanner A reference image data storage means to store reference image data, such as a bill, in said printer control means beforehand, and a forged document judging means to judge whether the image data from said host computer is a forged document by said reference image data are provided.

[0029] Moreover, if it is in the color picture formation equipment concerning claim 7, let the data stored in said reference image data storage means be the magnitude, spacing, physical relationship, or (reaching) color data of text data.

[0030] Moreover, if it is in the color picture formation equipment concerning claim 8, let the data stored in said reference image data

storage means be the point which serves as distance or criteria from the corner of the recording paper, or (reaching) a line.

[Translation done.]

OPERATION

[Function] All the image data from an image scanner also inputs the
image data from a host computer into a forged document judging means,
and the color picture formation equipment (claim 1) concerning this
invention performs the judgment of whether to be a forged document.
[0032] Moreover, in case the color picture formation equipment (claim 2)
concerning this invention is printed out, after judging it with a forged
document judging means, it attains improvement in the speed of print-
out actuation by bypassing an image-processing path.
[0033] Moreover, the color picture formation equipment (claim 3)
concerning this invention performs the forged document judging of the
image data created with the host computer by connecting the printer
control means equipped with the forged document judging means to an
image formation means without the judgment function of a forged
document.
[0034] Moreover, the color picture formation equipment (claim 4)
concerning this invention registers the information into a forged
information registration means, when the judgment result by the forged
document judging means is forgery, and it presupposes that print-out is
impossible.
[0035] Moreover, by registering the information into a forged information
registration means, when the judgment result by the forged document
judging means is forgery, and adding a specific image pattern to the
image judged to be a forged document, it becomes easy to identify the
color picture formation equipment (claim 5) concerning this invention,
and it becomes impossible to use it a forged document.
[0036] Moreover, the color picture formation equipment (claim 6)
concerning this invention is judged by the reference image data in which
it is stored beforehand whether the image data from a host computer is

a forged document.

[0037] moreover, the color picture formation equipment (claim 7) concerning this invention is judged by the reference image data of the magnitude of the text data in which it is stored beforehand whether the image data from a host computer is a forged document, spacing, physical relationship, or (and) color data.

[0038] moreover, the color picture formation equipment (claim 8) concerning this invention is judged by the point which serves as [whether the image data from a host computer is a forged document, and] distance or criteria from the corner of the detail paper in which it is stored beforehand, or (and) the reference image data of a line.

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EXAMPLE

[Example] Hereafter, one example of this invention is explained with
reference to an accompanying drawing.
[Example 1] Drawing 1 is the block diagram showing the system
configuration of the digital color copying machine concerning an example
1, and a printer controller. This system is constituted by the digital color
copying machine 100, a printer controller 110, and the host KONN
pewter 120 in drawing. Moreover, the digital color copying machine 100
consists of the color engine 101, the image-processing section 102, the
forged prevention unit 103, a selector 104, a video controller 105, and a
color scanner 106. Moreover, CPU111 by which the printer controller
110 was connected with the host computer 120, the image memory 112,
and the video controller 113 are connected through the CPU bus 114.
Moreover, the video controller 105 of the digital color copying machine
100 and the video controller 113 of a printer controller 110 are
connected by VideoI/F.
[0040] Next, actuation of the system constituted as mentioned above is
explained. A user creates the image data for 1 page to print with a host
computer 120, and gives a printing instruction to a printer controller 110.
The image data sent from the host computer 120 may be an image data,
when it is text data and graphic data. For this reason, CPU111 which
received the printing instruction from the host computer 120 performs
the following processings. That is, since all straight-line image and
curvilinear images are also made to express by the vector in the case of
text data or graphic data, it changes into the straight-line vector of a
main scanning direction, and the dot of the beginning of the main
scanning direction of the recording paper and the direction of vertical
scanning is developed by the 1st street of an image memory 112, and
the degree is once developed in a dot image to an image memory 112

like the 2nd street so that it may become the same as the recording
paper as shown in <u>drawing 2</u> .

[0041] Moreover, in order to color-print, the image concentration which
4 ****s (black) of C (cyanogen), M (Magenta), Y (yellow), and K are
prepared [concentration], and wants to print an image memory 112 is
written in each address. In addition, the configuration of an image
memory 112 may be C, M, Y, and not K but R (red), G (Green), and B
(blue).

[0042] After expansion of the image data to the above-mentioned image
memory 112 is all completed by 1 page, the image data stored in the
image memory 112 is sent out to a video controller 113. In a video
controller 113, in order to double with the communication link
specification of VideoI/F, amendment of the timing by the difference in a
pixel clock and amendment of the voltage level by the difference in I/O
level are performed, and image data is outputted to the video controller
105 by the side of the digital color copying machine 100 from VideoI/F.
The video controller 105 with which image data has been sent sends
image data to a selector 104 according to the timing of the digital color
copying machine 100 interior, and a voltage level. In a selector 104, the
image data sent from the scanner 106 when performing copy processing
is chosen and outputted, and on the other hand, in performing printing
processing, it chooses and outputs the image data from a video
controller 105.

[0043] Moreover, the forged prevention unit 103 performs the existing
forged prevention processing, and distinguishes and outputs whether the
image data chosen by the selector 104 is forgery. Moreover, in the
image-processing section 102, like the usual copy processing, image
processings, such as MTF amendment, gamma amendment, dithering,
and color correction processing, are performed, and the image data
expressed by C, M, Y, and K is outputted to the color engine 101. With
the color engine 101, based on an electrophotography process, the light
corresponding to image data is irradiated at the photo conductor
charged beforehand, an electrostatic latent image is formed in a photo
conductor, the color toner charged in this electrostatic latent image is
adhered (development), and the image by the toner is formed on a photo
conductor. Such imaging processing is performed for every color, and a
color picture is imprinted on the recording paper and made to establish
and deliver to it.

[0044] <u>Drawing 3</u> is a flow chart which shows the processing of
operation concerning the above-mentioned example 1. First, initiation of

this processing judges whether the printing instruction has been sent to CPU111 from the host computer 120 (S301). When it judges that the printing instruction has been sent here, text data, graphic data, and an image data are developed to an image memory 112 (S302). Then, when it judges whether processing for 1 page was completed (S303) and judges that processing for 1 page was completed, it judges whether the color engine 101 is still more nearly usable (S304). When it judges that the color engine 101 is usable, printing processing of the image data converted into the above-mentioned image memory 112 is carried out (S305).

[0045] After performing the above-mentioned step 305, it judges whether the image data for [above-mentioned] printing is a forged document (S306). In this step 306, when it judges that the image data for printing is a forged document, printing of that image data is suspended and this processing is terminated. On the other hand, when it judges that the image data for printing is not a forged document in the above-mentioned step 306, image data is printed on the detail paper with the color engine 101 (S307), and this processing is terminated.

[0046] [Example 2] Drawing 4 is the block diagram showing the system configuration of the digital color copying machine concerning an example 2, and a printer controller. In drawing, this system forms the latch 401 for printers in the digital color copying machine 100 to the configuration of drawing 1 , and other parts are the same as that of drawing 1 . That is, about a function until it performs counterfeit distinction in the forged prevention unit 103, it is the same as that of an example 1.

[0047] Next, actuation of the system constituted as mentioned above is explained. In copy processing, the image data outputted from the forged prevention unit 103 performs the usual image processing by the image-processing section 102. Moreover, within the PURITTA controller 110, in being print processing, since it is carried out, image processings, such as dithering, enable the output of the latch 401 for printers, and detour the image-processing section 102, and it already outputs them to the color engine 101.

[0048] The above-mentioned actuation is further explained to a detail. Drawing 5 is a flow chart which shows the processing of operation concerning an example 2. First, initiation of this processing judges whether the printing instruction has been sent to CPU111 from the host computer 120 (S501). When it judges that the printing instruction has been sent here, text data, graphic data, and an image data are developed to an image memory 112 (S502). Then, when it judges whether

processing for 1 page was completed (S503) and judges that processing for 1 page was completed, it judges whether the color engine 101 is still more nearly usable (S504). When it judges that the color engine 101 is usable, printing processing of the image data converted into the above-mentioned image memory 112 is carried out (S505).

[0049] After performing the above-mentioned step 505, it judges whether the image data for [above-mentioned] printing is a forged document (S506). In this step 506, when it judges that the image data for printing is a forged document, printing of that image data is suspended and this processing is terminated. On the other hand, when it judges that the image data for printing is not a forged document in the above-mentioned step 506, the image-processing section 102 is bypassed (S507), image data is printed on the detail paper with the color engine 101 (S508), and this processing is terminated.

[0050] According to the above-mentioned example, while also being able to perform forged prevention to the image data from a printer controller 110, the unnecessary time amount concerning an image processing is lost, the color near the image data which the user created can be outputted further, and color repeatability also improves.

[0051] [Example 3] Drawing 6 is the block diagram showing the system configuration of the digital color copying machine concerning an example 3, and a printer controller. In drawing, while this system adds the latch 401 for printers in the digital color copying machine 100 to the configuration of drawing 1 , the forged prevention unit 601 is formed in a printer controller 110, and other parts are the same as that of drawing 1 .

[0052] Next, actuation of the system constituted as mentioned above is explained. Processing actuation is performed like the above until it develops to an image memory 112. In printing from a printer controller 110, before outputting from a video controller 113, the forged prevention unit 601 is passed and it performs counterfeit distinction processing. Therefore, the image data which performed counterfeit judgment processing without the printer controller 110 is outputted to the digital color copying machine 100, and printing is performed. Thus, in the case of printer ability, even if it is a digital color copying machine without a forged prevention function, a counterfeit judgment can be performed.

[0053] [Example 4] Drawing 7 is the block diagram showing the system configuration of the digital color copying machine concerning an example 4, and a printer controller. In drawing, this system has the composition of having connected to the CPU bus 114 the forged distinction register

701 which undergoes the output of the forged prevention unit 601 prepared in the printer controller 110, to the configuration of <u>drawing 6</u> . Moreover, other parts are the same as that of <u>drawing 6</u> .

[0054] Next, actuation of the system constituted as mentioned above is explained. When performing print actuation with a printer controller 110, it performs like the above-mentioned example 3. Since the selector 104 is constituted so that it can output to a video controller 105 bidirectionally, the image data read by the color scanner 106 of the digital color copying machine 100 is sent to a video controller 105 through a selector 104. Moreover, the video controller 103,113 which the digital color copying machine 100 and a printer controller 110 contain also has the composition that a bidirectional transfer can be performed, and the scanner data from a video controller 113 perform counterfeit judgment processing in the forged prevention unit 601. The image data which passed the forged prevention unit 601 is stored in an image memory 112, and is outputted to the display up of a host computer 120 etc.

[0055] In the above, when a counterfeit distinction result is forgery, the forged prevention unit 601 registers that it is forgery into the forged distinction register 701. In this case, although the output of a up to [a host computer 120] is possible, in case it prints, before CPU111 prints, a printout is stopped by detecting the condition of the forged distinction register 701. Thereby, forged prevention can be performed not only printer ability but in case a printer controller 110 also performs scanner ability.

[0056] [Example 5] <u>Drawing 8</u> is the block diagram showing the system configuration of the digital color copying machine concerning an example 5, and a printer controller. In drawing, this system has the forged prevention unit 601 prepared in the printer controller 110, and the composition of having formed the selector 801 for shading between video controllers 113, to the configuration of <u>drawing 7</u> . Moreover, other parts are the same as that of <u>drawing 7</u> .

[0057] Next, actuation of the system constituted as mentioned above is explained. When judged with it registering that it is forgery with the forged distinction register 701 like the above-mentioned example 4, consequently being forgery, when judged with it being forgery with the forged prevention unit 601, shading processing is performed by the selector 801 for shading. In the selector 801 for shading, when the bit width of face of image data is 8 bits, when it prints, a black solid image is outputted by outputting image data to a video controller 113 as FFh

which is the maximum of image concentration, for example. When it is judged with it being forgery in the forged prevention unit 601 by the above, shading processing can be performed, an output can be changed, and the crime by forgery of a bill can be prevented beforehand.

[0058] [Example 6] Drawing 9 is the block diagram showing the system configuration of the digital color copying machine concerning an example 6, and a printer controller. In drawing, this system forms ROM901 which stored the image data for forged prevention in the interior of the forged prevention unit 601 to the configuration of drawing 6 . Moreover, other parts are the same as that of drawing 6 .

[0059] Next, actuation of the system constituted as mentioned above is explained. When the CPU bus 114 is vacant while developing and storing image data in the image memory 112, the image data already developed from the CPU bus 114 is incorporated to the forged prevention unit 601, and it compares with reference image data, such as a bill beforehand stored in ROM901 which it has in the interior by the image data. And the comparison result of this image data and reference image data of ROM901 that were inputted and developed, and when it is judged that it is not a forged document clearly, interruption is applied to CPU111 and a counterfeit judgment result is told. However, in order to compare the image data developed to the image memory 112, the inside of ROM901 must be an image data.

[0060] Therefore, when image data is developed to an image memory 112, it enables it to perform counterfeit decision, in the case of printer actuation, at the time of printing, a counterfeit judgment can be written as it is unnecessary, and improvement in the speed of the processing time can be attained at it. However, in the case of scanner actuation, since the CPU bus 114 competes image data by the transfer to the display of a host computer 120, and the comparison to the forged prevention unit 601, the direction of the configuration by the above-mentioned example 4 may become a high speed.

[0061] Next, the actuation at the time of performing a counterfeit judgment is explained at the same time it develops the text data and the graphic data which have been sent from the host computer 120, and an image data to an image memory 112. The need of carrying out selectively about each bus (smallest unit of the vector of each image data) since sequence is not specified in the case of printer actuation but the expansion to an image memory 112 is developed at random is **. For example, when comparing text data like drawing 10 , it has the magnitude of a, b, and c specified as the pass of "0" in ROM901 of the

forged prevention unit 601 interior, and it is compared and judged. Subsequently, it has in ROM901, and it as well as magnitude is compared and also judges d which is spacing of the pass of "5" and "0."

[0062] Moreover, it compares with the image data which stores not only text data but the color data of all image data in ROM901, and develops them. In addition, although color data are expressed by RGB by the example of drawing 10 , the image data of CMYK is sufficient. Moreover, the location data (this example e, f, g) of the text data the "ticket" of the example shown in drawing 10 , and the text data "50" are also stored in ROM901, and it compares with the image data to develop. Thus, while developing the text data and the graphic data which have been sent from the host computer 120, and an image data to an image memory 112 and being able to judge forgery Since the accuracy of a counterfeit judgment does not have image data, such as increase and a bill to refer to, as an image data further by detecting the magnitude, spacing, color data, and arrangement, The capacity of ROM901 of the forged prevention unit 601 interior can lessen, and cost reduction can also be planned.

[0063] Furthermore, since the datum line into which slitting as shown in drawing 11 is put, or a reference point may enter in case two or more forged notes etc. are created, it distinguishes as compared with the distance from the corner of the recording paper or the datum line, and the image data that stores the distance between reference points in ROM901, and is developed. Thereby, forged prevention of two or more bills with one sheet of recording paper can be performed.

[Translation done.]

* NOTICES *

JPO and NCIPI are not responsible for any
damages caused by the use of this translation.

1.This document has been translated by computer. So the translation
may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 1, and a printer
controller.
[Drawing 2] It is the explanatory view showing the printing expansion
format to the recording paper of image data.
[Drawing 3] It is the flow chart which shows the processing of operation
concerning an example 1.
[Drawing 4] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 2, and a printer
controller.
[Drawing 5] It is the flow chart which shows the processing of operation
concerning an example 2.
[Drawing 6] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 3, and a printer
controller.
[Drawing 7] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 4, and a printer
controller.
[Drawing 8] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 5, and a printer
controller.
[Drawing 9] It is the block diagram showing the system configuration of
the digital color copying machine concerning an example 6, and a printer
controller.
[Drawing 10] It is the explanatory view showing the example of forged
check processing concerning an example 6.
[Drawing 11] It is the explanatory view showing the example of forged

check processing concerning an example 6.
[Drawing 12] It is the block diagram showing the printer structure of a system concerning the former.
[Drawing 13] It is the block diagram showing the configuration of a digital color copying machine with the forged prevention function concerning the former.
[Drawing 14] It is the block diagram showing the connection configuration of a digital color copying machine and a color printer controller concerning the former.
[Drawing 15] It is the block diagram showing the detail configuration of drawing 14 .
[Drawing 16] It is the block diagram showing the system configuration of the digital color copying machine concerning the former, and a printer controller.
[Description of Notations]
100 Digital Color Copying Machine
101 Color Engine
102 Image-Processing Section
103 Forged Prevention Unit
104 Selector
106 Color Scanner
110 Printer Controller
120 Host Computer
401 Latch for Printers
601 Forged Prevention Unit
701 Forged Distinction Register
801 Selector for Shading
901 ROM

[Translation done.]